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India

THE HUMAN FACTOR IN ECONOMIC GROWTH : AN INTRODUCTORY EXERCISE WITH SPECIAL REFERENCE TO INDIA

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NOTES

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THE HUMAN FACTOR IN ECONOMIC GROWTH - AN INTRODUCTORY EXERCISE WITH SPECIAL REFERENCE TO INDIA.

1. Recent studies in the economics of growth have shown that capital accumulation is only one among the factors that determine the pace and magnitude of economic development. Innovation, technology, the state of knowledge, these are as important as machinery and equipment, even though it must be admitted that these factors sooner or later get themselves expressed in terms of capital accumulation. But these are so closely related to the human factor that a whole new field of study has grown up aimed at explaining their growth and indicating the action that should be taken on the human factor in order to bring about induced variations in these determinants of economic growth. The growth of science and technology as also their application for the benefit of the less developed areas constitute only one aspect, albeit an important one, of the subject of the human factor in economic development. International studies of economic growth have also shown that many other factors, all of which get their unity only by the fact that they function through their effect on the quality and intensity of human effort, play an important part in determining the extent and pace at which natural resources get translated into the annual flows of goods and services that constitute the national income. Thus, institutions, legislation, traditions, education, organisation, motivation, communication - all these have become the subject of attention and analysis to the economists who are interested in unravelling the mysteries of economic growth and formulating programmes for speeding up the economic development of underdeveloped countries. The human factor in economic growth has thus become a major subject of study in the economics of development.

2. Obviously, the most important determinant of production, ceterus paribus, is the number of workers or the quantum of the labour force. The labour theory of value has pointedly brought to the forefront the relation between numbers and output, while the Marxian allergy to population control and family planning is an extreme illustration of the importance attached to the size of the labour force in determining the size of the national dividend. It is also well known that a part of the explanation of the recent German and Japanese economic miracles lies in the large supplies of additional

labour force they were able to get for participation in economic activity during the post-war period, the West Germans through disarmament and influx of repatriates from ceded territories and refugees from East Germany, and the Japanese through disarmament and repatriates from ceded colonies and spheres of influence. The stagnation theses evolved in the United States in the immediate post-war period is another example of the importance attached to a growing population and a growing labour force for ensuring a growing economy. Thus, the experience of developed economies shows the importance of what may be called the quantitative aspect of the human factor in determining the rate of economic growth. On this count, under-developed countries such as India with their huge populations and vast resources of labour power should have been advantageously placed in the race for economic development. And yet, population and numbers present a handicap rather than an aid to a country like India in her attempt to speed up the rate of economic growth. That the size of the labour force should be a limiting factor in the economics of growth of the developed economies while it functions as a handicap in the case of the underdeveloped economies is a paradox that stares the economist of the underdeveloped countries in the face and is now leading him to ask more questions about the economics of the human factor. When the Indian planner refers pathetically to the fact that while the national income went up by 42% during ten years of planned development the per capita income went up by only 16% because of the growth of the population, he is obviously implying that the resulting increase in the labour force has not been accompanied by a sufficient increase in the contribution of labour to national output. When he goes in for projections of per capita income and links it up with a diminished rate of population growth, he is obviously making the assumption that a smaller rate of increase in the labour force would be accompanied by a higher degree of productivity per unit of labour. To the Indian planner, increase in numbers thus represents an increase in the magnitude of unemployment rather than an increase in the resources available for increasing output. Obviously something more is needed if numbers are to yield their dividend in terms of increase in output, and this additional something seems to be absent or at best woefully deficient in an underdeveloped economy like India, while it seems to be present or at least sufficiently so in the developed economies like those of the U.S.A. or West Germany or Japan to give them a high rate of current economic growth. It is also becoming evident that this something more is not just capital. It is also all the other things that in their totality affect human efficiency and increase labour productivity. It is the study of these other things that constitute the subject of the human factor in economic growth. And it goes without saying that, considering the paucity of capital in these countries, the limitations that exist on

foreign aid, and the urgency of speeding up the rate of growth, a study of the human factor in the context of economic development becomes imperative for all those who are interested in the welfare of the underdeveloped countries.

3. The efficiency of the human factor in the production process rests upon the following features:

(a) Physical
(b) Mental
(c) Psychological
(d) Organisational

To deal with the problem of improving human efficiency and thus promoting economic growth, the planner has not only to study all these factors but also the problem of ensuring balances between the demand and supply of different kinds of labour skills and preventing both bottlenecks and unemployment emerging in the course of economic development. What follows is just an introductory exercise intended to illustrate the nature of the study rather than an attempt at examining the current role of the human factor in the economic development of any one specified country.

4. To begin with, efficiency of the human factor depends upon the physical fitness of the human being. A labourer or a clerk or even an intellectual who is underfed cannot put in his best effort with the result that his productivity is low. This prevents a rise in his income and therefore in his food consumption, and in turn, it keeps his productivity low and so the vicious circle continues of inadequate diet and low efficiency. The same thing is true of his immunity from disease, his housing, state of sanitation and drainage, and the other physical conditions under which he lives as well as those under which he works. It is true that all this is a part of the phenomenon of under-development and can improve only as a result of development. But it is also true that one way of speeding up development - and a way which simultaneously tackles both the means and ends of economic growth - is to take whatever action is possible on the physical front and minimise, if not eliminate, the conditions which prevent the human being from physically being able to put in his best effort. It is in t is context that proposals for the use of surplus food in promoting local projects gets a part of its economic significance. Developed countries which have practically solved their food problem and do not normally have hunger as a noticeable phenomenon in their midst are not fully aware of what an important role hunger or other elementary deficiencies in the physical basis of living play in keeping human efficiency low in the under-developed countries. The under-developed countries themselves

do not have more than a general knowledge of the state of physical conditions relevant to efficiency by reference to different classes of workers and different industries and occupations among their peoples. In the absence of such knowledge, the policies followed are general, have no priorities or economic logic, and tend to become purely consumption-oriented in their effects instead of having a productive bias. It is suggested that more use should be made of the role of basic necessities in improving human efficiency. These include not only the quantity and quality of the diet but also health and physical conditions of work. One way of dealing with the problem of diet is the setting up of canteens in factories where well-balanced and subsidised food is made available to the worker at attractive prices. Malaria eradication programmes not only reduce mortality but also reduce the man-years of labour that are lost through sickness and improve the quality of the labour which is at work; similarly adequate supplies of drinking water, as also other measures of public health. Fencing of machinery, ensuring of proper ventilation, reduction in noise and smoke, provision of baths, all these add to the efficiency of labour and increase the output that is traceable to the human factor. Good housing and provision of creches for children also help to increase efficiency. The important point to note is that more and better food, good housing, eradication of disease, and provision of public health facilities and satisfactory physical conditions of work are not only the end product of efficiency but also the determinant of efficiency. Expenditure on the provision of these facilities will therefore be productive and should be treated as investment rather than as mere consumption. While no detailed or specific studies have been made on this subject in India, it is clear from the general evidence that is available that health, diet, and physical conditions of work do constitute a positive element for bringing about an increase in the efficiency of the human factor.

5. The second set of factors that influence efficiency can broadly be described as the state of skills. Physical fitness is not enough. Skilled labour is not only more efficient but also becoming a necessary condition of economic growth in view of the development of science and technology in its application to practically all economic activity. Skills in turn are determined by education and training. It is not enough merely to recognise the importance of education, leaving it to the so-called professional educator to determine the various constituents of the supply of education. Education has a very important role in economic development and it is necessary to get a clear and detailed idea of the relation of education to the development of manual, technical, scientific, professional, and other work skills in the economy, if we are to embark on a planned programme for improving the efficiency of the human factor.

6. Because of the assumption that, from the economic point of view, the relevant object of education is the imparting of skills, it must not be inferred that all education has to be scientific or technical or professional or vocational. Even if education is to be only skill-oriented, it has to be recognised that there is a broad base of general education including literacy and language that is common and is a pre-condition to the acquiring of skills. Moreover, what economic development requires is not merely specific skills but also general skills in the sense of a reasonable measure of coordinated development of mind and body, industrial discipline, and capacity for receiving communication. It is also necessary to provide for a degree of mobility as between different skills and the capacity for readaptation and re-training from one skill to another. No amount of planning can provide for a perfect balancing of demands and supplies and it is of the very nature of growth that flexibility and accommodation to change is required on the part of the human factor to the changing tempo and content of economic development. Under the circumstances, very careful attention needs to be paid to the relation of general and special education, the duration and content of the pre-specialised education or training, the relation between different kinds of specialised education or training, and the kind of built-in and/or specific programmes that can ensure adaptability of the labour force to the changing requirements of economic dynamism. All this means a rather different kind of analysis of both the terminal and the preparatory aspects of all kinds and stages of education, including primary, secondary, university, research, professional, technical, vocational and so on. The point to emphasise is that education as the producer of skills is a composite and a joint commodity, having both horizontal and vertical aspects and as such requires a far more detailed analysis than it has perhaps received so far at the hands of the purely professional and consumption-oriented educators.

7. Man power planning is another important aspect of the techniques that are needed for making optimum use of the human factor. To the extent that skills are specific and have specific costs of production, it becomes important to see that economic criteria are kept in mind in undertaking the investment needed for the creation of these skills. It becomes equally important to look at the demand side for skills and arrive at projections that give a reasonable basis for the planning of supplies. It is also essential to bear in mind the continuous possibility of imbalances and the implications on the supply of skills of varying periods of production as also of depreciation and of obsolescence, and therefore plan for the flexibility and adaptability that the educational system requires in order to deal with these

implications. Man power planning is not only the planning of outputs but also that of inputs if bottlenecks are not to develop in the production of the required skills. It will be seen therefore that man power planning is now becoming an essential feature of adapting the human factor to an increasing role in economic development and it goes without saying that this requires a coordinated effort not only on the part of educators and administrators but also of economists, statisticians, and resource specialists.

8. Attention must also be drawn to the place of research and innovation among the factors broadly classified as mental that are relevant to the optimum use of the human factor in economic growth. There is sometimes a feeling that as under-developed countries can draw freely upon the supplies of research, technology and innovations that already exist in the developed countries, it is not necessary for them to have their own apparatus for research and innovation and, indeed, that it would be a mis-allocation of scarce resources for them to do so. This is a somewhat naive and certainly partial understanding of the position. First of all, research and technology accumulated in the developed countries are not freely available for transfer to the under-developed countries. Secondly, the kind of technology that has been developed in these countries or the type of research that they undertake is essentially corelated to their own complex of the state of economic development, the state of technology and scientific knowledge, the availability of equipment and other material and organisational resources, and the training and skills of their own labour force; and these conditioning factors do not usually prevail in the underdeveloped countries. Even when the innovation or technology can be transferred, it requires reorientation and readaptation that requires original research on the part of the under-developed countries. Finally, the very development of professional or scientific or technical skills requires research opportunities on the part of the instructors, if they are to acquire adequate knowledge and develop the requisite mental skills in the subjects concerned. It is therefore essential for under-developed countries wanting to make optimum use of their human factor to provide for adequate facilities for research and higher learning in their educational system. It is even more necessary that the research workers and their institutions are linked in a functional, if not an operational, way with the needs and queries of the various sectors of the economy.

9. The third set of considerations that determine the efficiency of the human factor are what may broadly be called 'psychological'. For ensuring an efficient utilisation of the human factor in the economic field, it is not sufficient to have physical fitness and requisite skills.

It is also necessary that there should be adequate motivation on the part of the human factor to maximise the use of its labour power and skills. In addition, incentives are needed for translating this motivation into actual inputs of time and skills in different fields of economic activity.

10. For ensuring adequacy of motivation for maximisation of human effort in the economic field, it is essential for the human beings concerned to have a continuing desire for a progressively higher standard of living. Ultimately the demand for income determines the supply of work, and if people are content with a low standard of living, do not believe in increasing their wants, have no material ambitions and are content with what they currently have, they are not motivated to increase the quantum or quality or intensity of the work they put in their economic activity. It is a characteristic feature of under-developed economies that the bulk of the people therein do not want more goods and services and have a state of contentment with their lot that is truly pathetic in its implications for economic development. This 'pathetic contentment' on the part of the people is traceable to a number of reasons, most of which are connected with the social and religious structure of the community, its traditional values and culture patterns, and the dominant role of nature and other factors not subject to human control in determining the volume and composition of output. If we are to get the human factor to play its due role in economic growth, this 'pathetic contentment' has got to be broken and replaced by restlessness, discontent with current economic status and condition, desire for better economic conditions and higher levels of consumption, the will to achieve this desire, and readiness to change one's way of life in order to do so. All this does not come about naturally and spontaneously, though it does gather momentum once the process of economic growth has begun and started operating in right earnest. Education, demonstration, institutional change, and creation of conditions of control over nature and the environment are all necessary for starting this process of adequate motivation on the part of the human factor to play its needed role in economic growth.

11. In the case of a country like India, the hierarchy of caste and the dominance of the doctrine of Karma had combined to create a sense of acceptance of the economic status quo that was not conducive to the release of human energies for economic betterment. That some people were better off roused neither anger nor a desire for emulation but was accepted instead as a part of the incidence

of sin and merit accumulated during previous births. Religious beliefs exalted austerity, contentment, and non-indulgence in the satisfaction of human wants and certainly their non-multiplication; and this affected not only the masses but also the classes in their attitude to economic activity. Moreover, control over self was considered superior to control over environment, and philosophic speculation rather than scientific curiosity and experimentation because the fashion and ambition of the intellectual elements in Indian society. Colonialism and subjection to foreign rule added their share to the building up of this state of 'pathetic contentment' with economic stagnation; and the helplessness and weakness that underlay this phenomenon got obscured and rationalised by the values of religion and spirituality that formed such an important part of the Indian tradition.

12. Contact with western thought, the growth of universities with their emphasis, however inadequate, on science and technology, the demonstration effect of industrialisation and economic growth abroad, the emergence of nationalist sentiments and along with it the understanding achieved by the elite of the need for activising the masses by stimulating in them discontent with their condition and environment and instilling in them a feeling that this could be altered by the achievement of political freedom, all these helped India to shake off its traditional attitude to income, wants, and economic betterment. Construction of a network of railways and other improvement in transport, public health measures and control of epidemics, major irrigation works with their dams, canals, and hydro-electric power, these helped in creating the feeling that nature was not all powerful and that it was possible to conquer the environment through intelligent and coordinated human effort. Modern education, travel, urbanisation and industrialisation even of the limited extent reached during British rule, and opportunities opening out to talent rather than merely status and social position, all these helped to break the mental and emotional hold of traditional values, religious practices and social patterns on Indian life and create a ferment that added to the forces making for change and adaptation of the human factor to a more positive role in economic growth. It must be added however that even today, fifteen years after the achievement of political freedom, the process is not complete and there are large pockets in the Indian economy where the human factor is still suffering from 'pathetic contentment' and refuses to yield to the temptation of a higher standard of living.

13. Moreover, the human factor does not come into its own in economic growth merely by the acquisition of a

desire for a higher income and a better standard of life. It is also necessary to establish the belief that increased income is the result of increased effort. To do this is not easy in an underdeveloped economy which is usually feudal in structure with concentration of land ownership and dominated by hierarchical status based largely on heredity rather than achievement. Nevertheless, it has got to be done and that too deliberately and with determination, if we want the human being to put in his economic best. Land reforms, ceilings on rentier and similar property incomes, and other institutional changes directed at establishing a close corelation between income and work are all part of the measures necessary for stimulating the will to economic effort in the human being. Indian experience has proved however that it is not enough to bring about disassociation between income and absence of work among the upper classes of the feudal and agrarian societies characteristic of the pre-industrial era. While this has a good demonstration effect on the masses - apart from the healthy effect it has on the classes - there is a danger that the masses themselves, in their new-found desire for more income and conscious of the new power they enjoy in a working democracy such as India, may expect an increase in their income to flow from outside, from the state or other classes or some other source, rather than from their own exertion and effort. An underdeveloped economy which has embarked on a full-fledged political democracy and released among its people what is called a revolution of rising expectations faces the great danger of its workers resorting to an agitational rather than a work approach to the problem of securing higher incomes. It is, therefore, essential that right from the start of the process of deliberate economic development, the connection between work and income must be built into the psychology of the people, including not only the classes but also the masses. How this is to be done is one of the many problems that constitutes the strategy of using the human factor for economic development.

14. While this problem of establishing a close functional relationship between income and work presents many difficulties in its general aspect, it is easier of treatment in specific fields. A whole new system of work incentives have been developed in recent years in industrial societies; and any underdeveloped country wanting to make full use of its human factor should draw upon the rich experience that has been accumulated both in the capitalist and communist societies, notably both in the United States and in the Soviet Union. Thus,

piece wages, production and/or profit bonuses, overtime, reward for overfulfilment and penalties for underfulfilment over agreed production or work norms, special kinds of recognition of exceptional merit, etc. are all part of the machinery that efficient economic systems have been using for tying up income with work and thus promoting the optimum utilisation of the human factor in the economic field. How far these incentives have to be confined to individuals and to what extent they can be extended to groups is again a problem awaiting greater study in the strategy of the human factor in economic growth. There is also the whole field of incentives for the stimulation of saving, of investment, of exports, of desired location of industry, of the desired priorities and patterns of economic activity, and other features pertinent to planned economic development. All this indicates the great number of studies that are required on the subject of incentives in the context of human behaviour and economic growth.

15. The fourth set of factors concerned with the maximisation of human efficiency in the economic field can be brought under the broad heading of organisation, which word I prefer to either management or administration. Organisation has been always recognised in neo-classical economics as one of the four factors of production; and it has been identified with entrepreneurship on the production side and profits on the distribution side. In the context of the problems dealt with in this paper, I use the word 'organisation' in a broader sense to cover the entire system of techniques employed and principles used for putting the square peg in the square hole and providing for its continuous movement into squarer pegs in squarer holes. Among the techniques or machinery thus needing attention for the optimum organisation of the human factor for economic growth, I would list vocational guidance, employment exchanges, resettlement and training, recruitment, promotion, personnel relations, and management. The principles that should be applied in the operation of this machinery, I would list as the giving to every worker the vocational guidance suited to his individual ability and inclination, marrying demand to supply through employment exchanges and supply to demand through suitable schemes of resettlement and training, both on a micro rather than a macro basis, determining promotion not merely on the basis of seniority and experience but also on that of merit and job suitability, providing conditions of work that are consistent with human dignity, stimulating pride in achievement rather than in domination and leading to fulfilment of personality, and finally, providing for channels of communication

and understanding between the different individuals or groups of human beings engaged in a given business establishment or unit of economic activity that will result in a consistent and coordinated performance of the task before it. Each one of these factors, both machinery and principles, needs a whole paper to itself for doing justice to its place in the human factor and economic growth. All that I wanted to do in this paper was to draw attention to some of the important elements of the organisation of the human factor for economic growth and suggest that they need study not only in a priori and theoretical terms but also in terms of the rich experience of the developed economies, both capitalist and communist, and including both the positive and the negative aspects of this experience, the success and the failures as also the commissions and omissions that they may reveal.

16. Before I proceed to conclude this paper, it is necessary to clear up a possible misunderstanding that may arise from the emphasis I have laid in the beginning on the paradox of the quantum of the labour force functioning as an asset in the developed economies while it is regarded as a handicap in the developing economies. I had therefore pleaded for the undertaking of studies on the role of the human factor in economic growth and the formulation of measures that will make the quantum of labour in the underdeveloped economies more and more of a productive asset. But this should not be taken to mean that the underdeveloped economies can afford to see an indefinite growth in the numbers of their population. Because of their very late start in the race for economic development and the very large gap that has grown and is growing in consequence between the levels of living of the developed and the developing economies, it is essential that the latter should be able to achieve much higher current rates of growth than the former. Levels of living depend not only on the size of the national dividend but also on the number of persons who are to share it; and if the numbers go on increasing in the under-developed countries at the rate at which they are now doing, the rate of current growth they will need to catch up with the developed economies will be almost impossible of achievement. In the case of the countries that took their own time to reach the status of developed economies, the death rate fell slowly so that the slow fall of the birth rate did not lead to an uneconomic increase in numbers; and the quantum of labour force did not therefore prove to be a handicap in the way of economic growth and rising average levels of living. In the case of the under-developed countries of today, however, the position is

different. In the last two decades, the death rate almost everywhere in the under-developed world has fallen rapidly thanks to the ease of application of modern methods of medicine and health; but the birth rate has not fallen simultaneously with the result that the rate of population growth has come to be between 2% and 3% a year. It is imperative that this rate of population growth should not continue. Obviously, it is not possible to do this by reversing the trend in the death rate or preventing its further fall. What is needed is a sharp reduction in the birth rate. Developing economies are aware of this need and countries like India have officially gone in for an elaborate programme of family planning aimed at reducing the birth rate. But it is not easy to bring about a drastic fall in the birth rate within a short period. Science and technology have succeeded in devising measures for reducing the death rate without the prerequisite of a high standard of life, which is all to the good. But they have not succeeded in devising measures for bringing about a similar reduction in the birth rate in the context of under-development. What is needed therefore is a deliberate effort on the part of science and technology to devise methods that would lead to a sharp fall in the birth rate and are capable of application in the under-developed world. I would, therefore, include in the role of the human factor in economic growth an important place for deliberate regulation of the growth of numbers and a drastic reduction in the birth rate. The psychological and sociological factors necessary for this purpose have of course to be studied and acted upon by the governments and peoples of the under-developed countries; but a conference such as this, which deals with the application of science and technology for promoting economic growth, should also give adequate attention to the application of science and technology for reducing the birth rate in the under-developed countries to something like half or less of their current rates and that too within a period of not more than one or two decades at the outside. I hope that the challenge which this poses to modern science and technology will be taken up by the scientists and technologists of the developed countries.

17. There is one more element concerning the role of the human factor in the under-developed countries which needs stressing. In all under-developed economies, there are large numbers of people who are not able to take advantage of even the limited facilities that are available for modernisation and increase in productivity. These classes are described in India as the weaker sections of the community. They are weak and unable to grow partly because of their sub-human economic status and also because of their social

organisation, their traditional values and ways of living, and other sociological, cultural, and psychological characteristics that are inhibitive of their taking advantage of the facilities that planning and economic development places at their disposal. We have found by experience in India, for example, that facilities for increased productivity created for the human factor by community development and National Extension Service programmes in the rural areas do not lead to all round development on the part of the rural population and that large numbers of people somehow do not take advantage of the facilities that are open to them for economic betterment. This is a subject which requires careful study and remedial action in terms both of equalisation of opportunities and of social change, if the human factor is to play its appropriate role in the promotion and acceleration of economic growth in the developing economies.

18. In conclusion, I would like to reiterate the importance of the role that the human factor can play in economic growth. Underdeveloped economies have tended to pay far more attention to the role of capital and investment in the promotion of economic growth and in fact be so obsessed by this factor that on the one hand, they set their targets low and, on the other, lean unduly on foreign aid. The result has been that progress is slow and the gap continues to widen between the developing and the developed economies. Especially countries like India, which are rich in human resources, have to adopt a far more positive and studied approach to the productive use of the human factor than they have done so far. This requires action on all human fronts, sociological, institutional, political and psychological, in addition to the strictly economic. Human energies have to be nurtured, trained, stimulated, and organised for the purpose of being effective in the economic field and promoting economic growth. And this can be done through self-knowledge and self-help. I hope, therefore, that the human factor will come into its own in the underdeveloped economies as a positive instrument for increasing both production and productivity.

19. I cannot leave this subject of the role of the human factor in economic growth without giving it a much-needed corrective. The human factor is not merely a determinant of production. The human being is also the objective of production. In our new-found enthusiasm for using the human factor for the promotion of economic growth, talking of human capital, of investment in education and calculating the economic returns thereon,

and of studying social structure, traditional values, cultural patterns and psychological aspects all from the point of view of maximising production, we must not forget that the human being is much more than a producer. It is true that man cannot live without bread but it is also true that he cannot live by bread alone. The economic man is much less than the whole man and it is the whole man who, in the last analysis, should interest all of us, including the professional economist and the administrative planner. While therefore we in the underdeveloped economies should go all out to makeadequate and deliberate use of the human factor for promoting economic growth, we must never forget that economic development is only a means to an end. We must always remember that this end will not be achieved if the process of economic growth is not subject to the wholesome discipline of human and spiritual values which have come down to us through the centuries and in all lands. After all it is these values that lend spice and flavour to the joy of living and it is the attempt at achieving these values that gives meaning and purpose to the continuity of human existence. We cannot therefore let our desire for economic growth make a machine of man, even though we should, within the limits set by human and spiritual values, strive to adapt and use the human factor for getting out of the rut of economic stagnation on to the road of economic growth and rising levels of consumption.

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Agenda Item: B.2.2

Romania

NEW SYSTEMS OF VOCATIONAL TRAINING AND OF APPRENTICESHIP

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NEW SYSTEMS OF VOCATIONAL TRAINING AND OF APPRENTICESHIP

by

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State Planning Committee

The system of vocational training of qualified workers

1. An integral part of the process of the large-scale reproduction is also the large-scale reproduction of the qualified labour force. In the socialist economic system, the rate of unfolding large-scale reproduction of the qualified labour force is determined by the plan of developing the national economy, in close correlation with the rate of the large-scale reproduction all over the national economy. This concordance is determined, in its turn, by the unitary character of the forces of production, by the mutual inter-conditioning between the reproduction of the means of production and the reproduction of the labour force.

2. In various stages of the unfolding of the process of socialist large-scale reproduction, depending on the concrete conditions, the system of training qualified labour force therefore of the qualified workers is also improved. When improving the system of training qualified workers in the years of socialist construction in the Rumanian People's Republic the following decisive elements have been taken into account: the urgency with which the economic development required the respective cadres of workers and the material basis of the education training qualified workers.

3. Taking into account the high rate in which the economy of our country has developed and is developing, which determins a continuous increase in the necessity of qualified workers, on the one hand, and on the other, the very weak material basis which the people's democratic regime inherited from the past regime, it is clear why the training of workers in enterprises by various forms of courses had a special importance in the post-war period.

4. Granting the deserved attention to the training of workers in enterprises by such courses, the material conditions for the extension and improvement of vocational education have been created and developed at the same time, with a view to training qualified workers, aiming at training, first of all through schools, all workers who are qualifying in complex trades and first of all those who are working in the main branches of industry of our country, such as for example in the machine-building industry, in the chemical, oil industries, in the industry for the superior processing of wood, etc.

5. Thus in the concrete conditions of the building of socialism in the Rumanian People's Republic, a system of training qualified workers has been created, which comprises various durations and various qualitative

stages. This system is sufficiently flexible to meet the varied requirements of development of the national economy. We think that the varied forms in which the flexibility of the system of training qualified workers is crystalized, meeting the requirements of our national economy, can be taken into account by those countries which are developing, which have similar problems. For this very reason we propose to synthetize the existing system in the Rumanian People's Republic, previously mentioning that this system is being further improved, taking into account the fact that the cultural and school instruction level of the working people in our country is raised by the achievement of general and compulsory 8-year education.

6. The entire system of training qualified workers in our country is characterized by the close link of the process of theoretical and practical training with the process of production in industrial and agricultural enterprises. The pupils of the schools training qualified workers, as well as people who are directly qualifying in production, acquire the practical knowledge on the basis of the curricula and syllabus, under the guidance of practice instructors, directly in production, thus coming into contact already during their training, with modern equipment and installations, which allow them to better form their practical skill, and master the new technique.

The organization of education for the vocational training of qualified workers

7. The education for the training of qualified workers, as well as the entire education in the Rumanian People's Republic, is scientifically realistic and placed on deeply democratic bases, being accessible to all citizens of our country, irrespective of sex, nationality, race of religion.

8. This education is carried out in schools with a permanent character and in enterprises, by courses with a varied duration or at the place of work, to the extent the requirements of cadres cannot be satisfied only with the school-leavers, as well as in case the already qualified workers in a subdivision of trade complete their training or are getting specialized in a certain domain.

9.a) There are three types of schools in the education for the training of qualified workers: vocational schools of apprentices, schools for learning various trades and technical schools for qualified workers.

b) In the vocational schools for apprentices are admitted the school-leavers of 7-year schools of general educaation, and in the future of 8-year schools, 14 - 16 years of age. For certain trades which require special physical and working conditions (the mining and drilling sector) the minimum age required the admitance is of 16 - 18 years. The schooling period is of 2 - 4 years depending on the content of the trade. The admitance to these schools is made on the basis of the results obtained at the entrance examination.

c) The schools for learning various trades have the same conditions of admitance and duration of training on trades like the vocational schools for apprentices. But they are different from the latter as regards the organization of practical training. At the schools for learning various trades are organized in localities with a less developed industry, the schools have their own workshops both for initiation in the first year and for production. The list of the trades is limitted to the trades of large utility, such as for example: mechanic locksmith, cabinet makers, joiners, electricians, tin workers, tailors, etc.

d) In the technical schools for qualified workers are admitted the school-leavers of middle schools of general education (lyceum) of 17 to 25 years of age. The pupils are trained for various complex trades, which require a higher level of knowledge, thus for instance: electrician for the maintenance of mechanized and automatized aggregates, signalling electro-engineer, centralization block, telephone-telegraph-radio, mechanic for measuring and automation apparatus, specialities for the chemical industry, for geo-physical prospection, thermic treatments, etc. The schooling period, depending on the specific of the trade, is of 1 to 3 years. The admitance to these schools is made according to the results obtained when leaving the middle schools of general culture (lyceum).

10. The experience gained so far proves that the old mentality generated by the economic social conditions inherited from the past regime, in keeping with which it would be a shame for a graduate of a secondary school to become a worker, gradually disappeared; thus, a new mentality took shape, generated by the new economic social conditions, in which work in enterprises is considered work of honour. The fact that modern technique plays an ever bigger role in all the economic branches and requires workers with a high level of general knowledge, has stimulated the development of the new mentality.

11.a) The ever bigger necessities of cadres with high qualification have led to the fact that a number of enterprises promoted the graduates of these schools, after a relatively short length of service, as technicians.

b) Great attention is being attached to the analysis of this experience in our country, and it seems that the conclusion will be reached that in the future, the workers of high qualification and technicians should originate from among the graduates of the secondary schools of general culture (lyceum) after having acquired qualification in production as workers in various complex trades, and also acquired theoretical knowledge by evening and non-attendance courses.

The qualification of workers through practice at the place of work and short courses

12. The training of workers for more simple trades which do not require complicated theoretical and practical knowledge, is achieved through a 2 - 3 months practice at the place of work. The courses of knowledge necessary for the practicing of the trade are delivered by the technicians and qualified workers of the respective enterprises, as part of their job. After learning the trade, the workers are employed on the basis of a practical and theoretical test before the wage tariff commissions in enterprises.

13. With a view to training the workers for more complex trades, training courses are organized, as well as, courses, for raising the qualification, courses of specialization for the workers. Such courses can last from 3 to 12 months and could be organized in such a way so that the workers should not interrupt production (courses with participation in production), or outside production (courseswithout participation in production).

14. At the training courses, the workers receive theoretical and practical knowledge which enable them to carry out operations of a certain level of complexity.

15. a)When the level of complexity of the trade is lower, a worker, can appropriate the necessary theoretical and practical knowledge for the respective trade as a whole, during the several months of the course. In the case of more complex trades, the training by short courses can be achieved in several stages. In the first stage, the worker qualifies for the carrying out of operations up to a certain stage, corresponding to a part or subdivision of the trade, and in the next stages he completes his training tending towards the superior level of the complex trade. The courses of these stage, are called courses for raising the qualification.

b) There are cases when courses of qualification are organize only for workers qualified in certain trades, for instance: in the mining industry pyrotechnists are trained only from among the qualified miners.

c) Both the above mentioned courses for the raising of qualification, and those of qualification on the basis of another trade aim at raising the qualification of the workers, with the difference that the latter are based not on a sub-division of the trade in which they raise their qualification, but on another trade.

16. For the trades which have a higher level of complexity, or require also a long experience, courses for the specialization of workers are organized (e.g.: various categories of setters of equipment, workers in tool work-shops-moulders,etc.

Organization of vocational schools

17.a) The vocations schools for apprentices and the technical schools for qualified workers are organized within the big industrial enterprises, with a high level of technicity; in agriculture, in machine and tractor stations, state farms, rapair workshops for agricultural equipment; in constructions, under the building. This method of organization ensures the direct link of the process of training with the practice of production.

b) The enterprises which run schools ensure the adequate conditions for the proper unfolding of the process of education.

18.a) The establishing of the numbers of workers being trained through the system of vocational training in our country, takes into account the current and future necessities of the enterprises in relation to the development of the existing production branches, their retooling, the increase in the number of enterprises, etc. in keeping with the previsions of the state plan.

b) Over 370,000 school leavers were given to the national economy by vocational education in the period 1949 - 1961. Approximately 60 per cent of them were trained for industry, 47 per cent of whom for the metallurgical and machine-building industries.

c) In the school year 1961 - 1962 the number of pupils in the vocational schools for apprentices and technical schools for workers amounted to 152,000. Compared with the school-year 1938 - 1939 the number of pupils has increased nearly 4 times.

d) The short courses for qualification, for the raising of qualification and for the specialization of workers were finished by 97,500 workers in 1961.

The content of education

19.a) In training qualified workers, of special importance is the ensu-

rance of a system of knowledge, abilities and skill which the pupils and workers acquire in the process of education.

b) The above mentioned system of vocational training and apprenticeship permits the full use of the rich experience of foremen, engineers and technicians in production who deal with the theoretical and practical training of pupils, as well as with the latest achievements of science and technique applied in enterprises.

20.a) Among the basic principles which are taken into account when working out the curricula and syllabus for these forms of training we mention:

b) the indisoluble link of education with the direct practice in production;

c) the principle of the logical link and succession of the subjects and of the observance of the continuity of the process of acquiring the knowledge, abilities and skill;

d) the principle of the accessibility of education;

e) the specific character of each trade, according to which the subjects, the time envisaged for teaching them, the succession of the years of study reflect the content and peculiarities of the respective trade

21.a) The instructive-educational activity in this system of vocational training and apprenticeship comprises:

b) practical training in school workshops and in production;

c) courses for theoretical training.

The curricula of the vocational schools for apprentices and of the schools for learning various trades

22.a) The subjects are divided into 2 groups: subjects of general training (mathematics, Rumanian language, physics, elements of political economy, etc. which aim at widening the horizon of general culture of the pupils and at developing with them a scientific outlook about the world) and subjects of general technical training and of speciality which differ from one trade to another. Generally, they are the following: the technology of the trade, the technology of materials, technical mechanics, mechanical drawing, the organization and planning of production, labour protection.

b) When required by the respective trade, the curricula also provides for other subjects such as : art and ornamental drawing (carpenter of furniture and technical articles), food chemistry, microbiology (laboratory assistant in the food industry), science of commodities (shop assistants) etc.

c) For the trades with a schooling period of two years, the subjects of general culture represent 43 per cent of the total number of classes of theoretical education, and the subjects of general technical training and of speciality 57 per cent.

d) For the trades of a schooling period of three years, the subjects of general training represent 34 per cent of the total number of classes of theoretical education, and the subjects of general technical training and of speciality 66 per cent.

e) Out of the total number of classes of general technical training and of speciality, over 30 per cent is affected to the technology of the trade as this is the basic object of study.

23. In addition to the theoretical subjects, the curricula provide for the first year of school, the practical training in the workshop of the school and for the rest of years, the practical training in production. As we have already showed, the pupils of the vocational schools for apprentices make practical training in enterprises, and the pupils of the schools for learning various trades make it in the production workshops of the schools.

24. The curricula ensure a harmonious development of the pupils from the physical, aesthetic and moral point of view, providing for hours of: physical education and sports, literary circle in the 3rd year and artistic ensemble .

25. Generally, education in vocational schools for apprentices and in the schools for learning various trades is organized on whole days of practical training and whole days of theoretical instruction alternating with those of practical training.

26.a) At the end of the schooling period, the pupils have to take a final examination which consists of:

b) a practical test (eliminatory) for obtaining the certificate of qualified worker.

c) the final examination for obtaining the diploma which is generally by taken in the following subjects:

i) the technology of the trade - written and oral;

ii) the organization and planning of production - oral.

The curricula of the technical schools for qualified workers

27. Considering the fact that the technical schools for qualified workers receive school-leavers of 12-year schools of general culture, having sufficient knowledge of general culture for learning the respective trade, the curriculum lays special stress on practical training. For example: the qualification of operator, of geo-physical, prospections, requires two years and the curricula provide for 3,132 hours, out of which 2,063 hours for laboratory work and practice in production (65.9 per cent) and the rest of 1,069 hours for subjects of general culture and of speciality. When qualifying for the trade of electrician for radio and television sets which requires 3 years, these proportions are of 68 per cent, 32 per cent, respectively.

28. The curricula for certain specialities, in keeping with the peculiarties and specific of the respective production sector provide for a general course of " elements of mechanization and automation of the production processes ". In order that this course be correspondingly appropriated by the pupils, the latter also receive knowlwdge of electro-technique and technical measurements.

The curricula for the training courses, as well as of the courses for raising the qualification , and courses of specialization for the workers

29. The curricula and syllabus for the training courses, as well as of the courses for raising the qualification and courses of specialization for the workers are proposed by the enterprises in which they are organized, within the limit of duration and of the number of hours provided for in the list of trades. The curricula are approved by the ministeries and central bodies which coordinate the activity of the respective enterprises. With a view to a better coordination of these curricula, the Ministry of Education deals with the coordination of the list and of the curricula for the short courses.

30. Each curriculum comprises the following elements: the duration of courses in keeping with the specific of trades, subjects to be taught (Rumanian language, mathematics, technology, organization of production, etc) as well as the number of classes for each of them.

31. On the basis of the curricula, syllabus are drawn up which show what theoretical knowledge and practical skill must be acquired by the pupils, so thet they could have a general level of professional knowledge.

32.a) Textbooks, guides and other demonstrative didactic materials are put at the disposal of the workers for the subjects of speciality.

b) Special stress is laid in the respective textbooks on the introduction of problems of new technique, the description of modern equipment of high profitableness, the advanced methods of work , and saving of materials.

The practical training of pupils in vocational schools for apprentices, schools for learning various trades, technical schools for qualified workers, and for workers who are trained in enterprises

33.a) Practical training plays a very important role in the system of vocational education of qualified workers, because in this way the pupils and workers develop their skill, by applying the knowledge acquired at the theoretical courses.

b) Practical training covers over a half of the schooling period, varying with vocational schools and schools for learning various trades between 55 per cent and 64 per cent, and with technical schools from 62 per cent and 68 per cent.

c) Taking into account the variety and complexity of the trades as well as the process of appropriation, the practical training takes place in two distinct stages which determine the professional qualification of the future skilled worker. Thus, in the first stage of schooling, namely in the first year, the pupils do practice work in school workshops, and in the second and third years they continue it directly in the production process in enterprises.

d) For the trades with the schcoling period of two years, a third of the whole number of classes of practical training envisaged in the curriculum, is deveted to practical training in school workshops, and two thirds to practical training in production; for the trades with a schooling period of three years, the fourth of the classes is represented by practice in school workshops and 75 per cent, practice in production.

e) In school workshops, the pupils are getting professional skill and become familiar with norms of turning out products, and norms of work.

i) The workshops are organized in such a way as to ensure the places of work necessary for each pupil and are endowed with the necessary modern equipment, in keeping with the new methods of work introduced in enterprises.

ii) In school workshops the pupils are grouped in classes or brigades of 10 to 15 pupils and work under the guidance of instructor foremen who teach them the trade according to didactic principles, from the most simple handling and movements, to complex operations.

iii) Practical activity unfolds on the basis of a syllabus, which is syncronized with the syllabus of the theoretical course of the trade's technology.

f) After doing practice work in school workshops, the pupils ciment their practical training on building-sites, in factories and works, where they actually operate the machines, individually or in brigades, under the supervision of the best foremen and workers in the respective sections.

g) The practical instruction of the workers who are trained in enterprises by short courses is organized in a different way for those who train with participation in production, and those who train without participation in production. The workers of the first category are guided all through the programme of work by front-rank workers or by foremen who have the task to instruct them. The workers of the second category do practice work only in the periods envisaged in the curriculum, also under the supervision of front-rank workers or instructor foremen.

Recruiting and employment of professors and instructors

34. The recruiting and employment of professors and instructor-foremen in vocational and technical education is done in keeping with their professional training, their length of service in the field of education and in the respective speciality, their pedagogical skill and experience gained in the process of production.

35. The lecturers in the subjects of speciality (technology, labour protection, the study of raw materials, mechanics and resistence of materials, organization and planning of production, elements of mechanization and automation), as well as the classes of practical training are entrusted to engineers, as well as to some of the best technicians, foremen and front-rank workers from production. Being interested in securing an adequate training of the pupils, the productive enterprises send the most competent specialists in production, as professors and instructors. Particular attention is attached to training these cadres in the methodical and didactic field, so that they could obtain good results in their work.

The material conditions ensured to pupils and workers during their professional training

36.a) The pupils of the vocational schools for apprentices are ensured by the state free upkeep which consists of bed and board, clothes and working equipment, handbooks and school essentials. In keeping with the work done by pupils during their practice of production in enterprises, they are also granted a certain quota in cash for small expenses.

b) Apart from the gratuitousness of education, the pupils of the schools for learning various trades, are granted a number of advantages as

regards their access to hostels and canteens.

c) All the pupils of the technical schools for skilled workers are granted state scholarships with which they can secure their boarding and meals at school canteens.

d) The workers who train with participation in production by instruction at the place of work or by short courses, receive the wages corresponding to their work in production. Those who train by courses without participation in production, receive an indemnity equal to the medium salary achieved in the last three months at the place of work.

i) Apart from the wages, they receive handbooks, guides and school essentials free of charge, and in case they have to go to another locality for following the courses, the state ensured them the transport and boarding free of charge.

37.a) After finishing the vocational and technical schools, the young qualified workers are ensured places of work in production, in the enterprises for which they were trained.

b) The leavers of the schools for learning various trades are also ensured places in production, in local industrial and building enterprises, in commerce and in the network of public catering.

c) While working in production, the leavers of the vocational schools for apprentices, of the schools for various trades and of the technical schools for qualified workers, have the possibility to continue their secondary and superior studies, at evening or non-attendance courses.

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ESQUISSE D'UNE POLITIQUE DE PRODUCTIVITE DANS LES PAYS EN VOIE DE DEVELOPPEMENT

Par G. ARDANT,
Inspecteur Général des Finances

Les mémoires rédigés à l'intention de la Conférence des Nations Unies sur l'application de la science et de la technique dans l'intérêt des régions peu développées sont des documents de travail. Ils sont publiés tels qu'ils ont été présentés et les assertions et opinions qu'ils contiennent sont celles de leurs auteurs.

NOTES

1. Les mémoires choisis pour être présentés en séance générale pourront être obtenus à la Conférence dans les langues officielles suivantes des Nations Unies: anglais, espagnol, français et russe.

2. Les mémoires choisis pour être présentés en séance spéciale pourront être obtenus à la Conférence dans l'une seulement de ces langues officielles.

3. Les résumés qui ont été rédigés pour tous les mémoires par les auteurs de ceux-ci pourront être obtenus à la Conférence dans les langues officielles suivantes des Nations Unies: anglais, espagnol, français et russe.

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ESQUISSE D'UNE POLITIQUE DE PRODUCTIVITE DANS LES PAYS EN VOIE DE DEVELOPPEMENT

Par G.ARDANT, Inspecteur Général des Finances.

Alors qu'elle leur serait particulièrement utile, beaucoup de pays en cours de développement n'ont pas donné à une politique de productivité la place qu'elle devrait tenir. A la méconnaissance de ce qu'elle peut leur apporter s'ajoute l'insuffisante adaptation des méthodes de productivité aux pays d'Asie, d'Afrique et d'Amérique Latine. D'où l'utilité de définir - en s'appuyant sur l'analyse, l'observation, l'expérience, une politique de productivité correspondant aux besoins et aux possibilités de régions en voie de développement.

I - NECESSITE D'UNE POLITIQUE DE PRODUCTIVITE.

A - Des pays industrialisés se sont rendu compte, à la suite d'un certain nombre d'études, de missions, de comparaisons chiffrées que, dans l'agriculture, dans l'industrie et le commerce, des entreprises analogues placées dans des conditions comparables avec des matériels équivalents, demandaient, pour produire la même quantité de biens, un nombre d'heures de travail variant de 1 à 2 (dans l'agriculture), de 1 à 3 (dans l'industrie) de 1 à 5 ou plus (dans le commerce).

Reconnaissant que l'équipement matériel, tracteurs ou machines, n'est pas le seul facteur d'accroissement du rendement, on en a déduit la fonction économique de l'enseignement, l'importance de la formation des adultes, la nécessité de diffuser des techniques d'organisation et de méthodes.

C'est pourquoi une série de pays se sont engagés avec plus ou moins d'ampleur dans un ensemble d'efforts continus et coordonnés visant à faire progresser cet ensemble d'investissements intellectuels. C'est ce que l'on appelle généralement - en un sens un peu restreint - la politique de productivité.

B - CETTE POLITIQUE EST PARTICULIEREMENT NECESSAIRE AUX PAYS EN VOIE DE DEVELOPPEMENT.

1°) - parceque la marge de progrès y est particulièrement forte : on admet, par exemple, que la simple amélioration des méthodes de l'agriculture africaine traditionnelle peut en doubler les rendements ; on a observé dans des entreprises industrielles asiatiques ou africaines 4 à 5 fois plus de main-d'oeuvre qu'il n'en fallait, en Europe pour produire, avec le même équipement, la même quantité d'objets.

2°) - parceque la productivité permet d'économiser les ressources naturelles rares (la terre en région surpeuplée, l'eau en pays aride) et l'équipement matériel peu abondant. Permettant de produire plus sans investissement matériel et par suite de dégager le surplus nécessaire aux équipements futurs, la politique de productivité permet d'échapper au cercle vicieux qui interdit le démarrage des pays pauvres. Faire une politique de productivité, c'est faire appel à une immense ressource inutilisée.

3°) - parceque seule la productivité permet de résoudre les problèmes essentiels des pays en voie de développement : l'industrialisation, qui ne pourra prendre l'ampleur nécessaire à défaut de la formation d'ouvriers, de cadres, et de chefs d'entreprises ; l'administration, dont l'efficacité suppose un effort de simplification et de perfectionnement des cadres, etc ...

C - OR LES PAYS EN VOIE DE DEVELOPPEMENT NEGLIGENT LES POLITIQUES DE PRODUCTIVITE.

1°) - parcequ'ils en sous-estiment les effets au profit d'investissements matériels spectaculaires,

2°) - parceque le sous-emploi n'incite pas à la productivité,

3°) - parceque l'on n'a pas défini ce que pourrait être une politique de productivité adaptée aux problèmes et aux possibilités des pays en cours de développement, c'est-à-dire de pays pauvres, peu instruits, où il faut aller vite.

II - PRINCIPES D'UNE POLITIQUE DE PRODUCTIVITE EN REGIONS INSUFFISAMMENT DEVELOPPEES.

A - DONNER UNE TRES GRANDE PLACE (dans le budget, le Plan, le système administratif) à la FORMATION DES ADULTES, aussi importante que l'enseignement puisque seule elle permet de rattraper les lacunes de l'éducation des enfants.

Par formation des adultes, il faut entendre :

1°) - L'implantation de moniteurs agricoles - d'une densité de 1 pour quelques centaines d'exploitations - dans chaque village,

2°) - Un système de promotion des ouvriers,

3°) - La formation d'organisateurs, de chefs d'entreprises. et

et d'équipes de direction,

4°) - Un système de perfectionnement applicable notamment aux administrateurs,

5°) - Une éducation de base qui doit s'ajouter à la lutte contre l'analphabétisme.

B - FORMER D'ABORD LES FORMATEURS, dans tous les domaines, y compris l'enseignement.

Ce serait résoudre rapidement le problème des professeurs ceux qui sont demandés à d'autres pays devraient être affectés d'abord à la formation des futurs maîtres et non à celle des enfants.

C'est là le seul moyen de règler en quelques années le problème de la vulgarisation agricole : s'il est impossible à un pays de trouver les 3 ou 4.000 moniteurs dont il a besoin, par contre, il peut faire venir quelques centaines de formateurs qui eux-mêmes pourront former en quelques années les milliers de moniteurs nécessaires. (EX. de la politique amorcée en Afrique par le Commissariat Général à la Productivité et le B.D.P.A.).

D'autres exemples pourraient être relevés de cette orientation qui devrait être donnée à toute la coopération technique ; on en reconnaît parfois le principe, l'application en est plus rare.

C - UTILISER LES TECHNIQUES DE FORMATION LES PLUS MODERNES.

1°) - Techniques matérielles : cinéma, radio, télévision sont très loin d'être utilisés comme ils pourraient l'être :

a) - parceque l'on veut les employer isolément, au lieu de les intégrer dans un système d'enseignement, C'est ainsi que la radio et demain la télévision pourraient permettre l'emploi de maîtres auxiliaires rapidement formés qui réuniraient les enfants et les adultes pour entendre des leçons professées à la radio. Le maître auxiliaire complèterait ainsi sa propre formation ; il ajouterait commentaires et explications au texte entendu (méthode du P. SALGEDO).

b) - parceque l'on ne donne pas la place nécessaire, parceque l'on ne réserve pas toute une chaîne à l'enseignement, à un enseignement complet, systématique, ordonné : la création d'une véritable université radiophonique devrait être envisagée (Cf. les propositions de M. LAUGIER).

2°) - Techniques pédagogiques.

Depuis quelques décades, une série de progrès ont été réalisés dans le domaine de l'enseignement et de la formation.

a) - L'éducation des enfants, utilisant les découvertes de la psychologie, progressant dans la ligne des grands pédagogues du XVIIIe et du XIXe siècles, connaît des procédés nouveaux. Certaines inventions restent à l'état de prototypes parceque les pays riches ne sont pas pressés par la nécessité de réduire ce que l'enseignement classique comporte de gaspillages et parcequ'ils hésitent à se départir de systèmes traditionnels. Mais les pays peu développés où parfois presque tout reste à construire, auraient le plus grand intérêt à ne pas copier des systèmes d'enseignement qui dans quelques années seront périmés : plus rapides, plus économiques, faisant moins appel aux connaissances livresques, les nouveautés pédagogiques peuvent répondre à leurs besoins.

b) - Parallèlement, des méthodes de formation accélérée d'ouvriers qualifiés, de contremaîtres, de techniciens voire d'ingénieurs ont été mises au point par de grandes entreprises ou par des gouvernements. Souvent créées pour mobiliser dans les plus brefs délais l'économie de pays en guerre, ces méthodes répondent - dans leur principe et sous réserve d'adaptations - à cette "lutte contre la montre" que doit être une politique de développement économique.

D - ORGANISER UN SYSTEME DE PROMOTION.

La promotion, ce moyen offert à chacun de faire ou de refaire des études pour lesquelles il se sent un goût et possède des aptitudes, intéresse, plus que tous autres, les pays dans lesquels la possibilité matérielle d'étudier a été refusée à la majorité de la population.

Un système de promotion bien organisé peut assurer à un pays sous-développé les cadres et les techniciens dont il a besoin.

Les expériences mêmes qui ont été faites dans des pays industrialisés, notamment en France, permettent de définir les grandes lignes d'un système de promotion.

1°) - Il doit combiner le cours du soir (ou par correspondance) avec la formation à plein temps. Si utile qu'ait été la formation inaugurée il y a plus d'un siècle par le Conservatoire des Arts et Métiers, elle avait l'inconvénient, ne reposant que sur les cours du soir, d'exiger de très longues années et une vocation presque héroïque pour permettre à un ouvrier de devenir ingénieur. La solution dégagée d'abord à GRENOBLE - consiste à offrir à ceux qui en quelques années ont fait la preuve de leurs aptitudes et de leur persévérance, la possibilité de terminer les études à plein temps dans les écoles d'ingénieurs, dans les facultés existantes ou dans des instituts qu'il faudrait peut-être créer spécialement pour les adultes.

2°) - La formation doit être continue : les diverses réalisations qui peuvent exister doivent se raccorder les unes aux autres : celui qui a réussi une promotion élémentaire doit pouvoir facilement passer au stade supérieur, la fin des programmes de l'une se soudant au début des programmes de l'autre.

3°) - La promotion doit être progressive et comporter la possibilité d'arrêts en cours de route. L'ouvrier ayant acquis les connaissances nécessaires pour être contremaître doit pouvoir, s'il désire arrêter là son effort, recevoir un diplôme qui témoigne de sa qualification et lui permette d'obtenir plus facilement l'emploi correspondant. Il doit pouvoir également, allant un peu plus loin, acquérir la qualification et le diplôme de technicien moyen ou de sous-ingénieur.

Par ces étapes successives on évite le découragement que peut provoquer la seule perspective d'un objectif trop éloigné pour sembler accessible.

4°) - Une grande partie de la promotion peut être organisée dans des entreprises - celles-ci devant d'ailleurs y être incitées par une taxe de formation professionnelle.

5°) - Cependant une véritable université de formation doit être créée ; elle aurait ses écoles et ses facultés à plein temps, elle organiserait des cours du soir et des cours par correspondance, elle utiliserait la radio et la télévision.

En effet, la principale utilité de l'université radiophonique pourrait être de faciliter l'acquisition des connaissances de base, polyvalentes donc se prêtant assez bien aux exigeances de la radio. Celle-ci permettrait à des hommes qui n'ont fait que peu d'études, ou n'en ont pas fait du tout, ce premier et difficile démarrage que constitue l'accession au monde de l'abstraction et des idées générales.

E - MOBILISER LES FORCES DE TRAVAIL DISPONIBLES POUR L'INVESTISSEMENT INTELLECTUEL, COMME POUR L'INVESTISSEMENT MATERIEL.

Permettre aux chômeurs permanents ou saisonniers de travailler à des investissements, cette recette du développement doit mener non seulement à de multiples ouvrages de petite hydraulique, mais aussi aux investissements intellectuels :

1°) - La construction d'écoles ou d'ateliers, par les habitants des villages, qui utiliseraient les matériaux traditionnels serait beaucoup moins onéreuse que les procédés habituellement employés ;

2°) - Des maîtres auxiliaires, des moniteurs auxiliaires, rapidement formés (Cf. Supra) pourraient donner une formation, aux enfants comme aux adultes, durant les périodes de chômage saisonnier ;

3°) - Des centres de formation professionnelle devraient pouvoir absorber la totalité des chômeurs des villes (de ceux du moins qui ne regagneraient pas la campagne).

F - ENSEIGNER LA PRODUCTIVITE A TOUS LES STADES.

1°) - A tous les niveaux - primaire et secondaire notamment - le travail manuel devrait tenir une place importante.

Celà permettrait de développer l'usage d'outils simples souvent ignorés dans les campagnes africaines - scie, hache, brouette, instruments de préparation des aliments, éventuellement traction animale ;

Ce serait une préformation et une certaine orientation vers l'enseignement technique ou un enseignement agricole plus développé.

Ce serait un moyen de réagir contre la dépréciation du travail manuel et l'attrait trop exclusif des fonctions administratives.

On pourrait même concevoir (Cf. projet de René DUMONT) une ferme école, où les enfants qui n'auraient pas accédé à l'école primaire combineraient le travail agricole avec l'acquisition d'un minimum de connaissance.

2°) - A tous les niveaux, notamment dans les écoles de techniciens ou d'ingénieurs et dans les facultés, organisation et amélioration des méthodes de travail (analyse et simplification du travail, détermination des prix de revient, standardisation, coopération, etc...) figureraient en bonne place dans les programmes.

G - UTILISER TRES LARGEMENT LES TECHNIQUES D'ORGANISATION ET D'AMELIORATION DES METHODES DE TRAVAIL.

Les pays en cours de développement en ont plus besoin que d'autres. Des exemples peuvent en être donnés.

1°) - Simplifier l'administration (élaguer les formalités inutiles, éviter les va-et-vient de dossiers, déconcentrer, etc) cet objectif de toutes les réformes administratives s'impose particulièrement à des pays où les cadres sont peu nombreux et n'ont pas derrière aux des années d'expériences. Ils ont besoin du type d'administration la plus moderne.

Ceci suppose l'implantation de bureaux d'organisation, c'est-à-dire l'action d'hommes qui donneront certes des conseils mais surtout formeront, dans le pays même, des spécialistes de l'organisation tout en préparant - par des stages - l'ensemble des fonctionnaires à faciliter l'action des organisateurs.

2°) - Faute d'une classe traditionnelle de chefs d'entreprises il faut donner à ceux qui dirigent les exploitations (publiques ou privées) des connaissances remplaçant, dans une certaine mesure, cet empirisme - parfois trop routinier d'ailleurs - qui dans les vieux pays industriels supplée au défaut de formation systématique.

Des spécialistes de l'organisation devront être formés et implantés par les aider, mais il faut aussi préparer - par des stages de perfectionnement pour les uns, par un véritable enseignement pour les autres - les chefs d'entreprises et les membres des équipes de direction.

Tel doit être le rôle de centres professionnels de productivité et d'Instituts de préparation à l'administration des entreprises, dont la création n'importe pas moins que celle des écoles d'ingénieurs.

H - METTRE LES TECHNIQUES DE PRODUCTIVITE A LA PORTEE DE TOUS, NOTAMMENT PAR LES FORMULES DE GROUPEMENT.

1°) - Techniques d'organisation et d'amélioration des méthodes de travail ne sont plus ignorées des grandes entreprises qui ont généralement leurs bureaux d'organisation. Ceci n'est pas à la portée des entreprises petites ou moyennes : c'est pourquoi divers pays, notamment la France, ont mis au point une série de formules de groupement (Centres professionnels de productivité, Centre d'études du Commerce, centres d'études techniques agricoles, Centres régionaux, etc...) qui permettent à de petites exploitations de s'associer pour utiliser les services d'un organisateur et faire en commun certains efforts de productivité (études de marché, normalisation par exemple).

2°) - De telles formules, avec les adaptations nécessaires, seraient particulièrement utiles aux pays peu développés : à défaut de réalisations spontanées, l'Etat devrait, dans un premier stade du moins, provoquer la création de tels groupements.

I - LE CREDIT EDUCATIF.

Un des meilleurs moyens de diffuser la productivité consiste à combiner les conseils techniques et la distribution du crédit.

L'organisme bancaire doit être en même temps un centre d'assistance technique.

Diverses formules (en Amérique la Home farmer's administration, et la Small business administration, en France les prêts d'organisation et de productivité et la S.A.T.E.C.) montrent qu'il est possible de s'engager dans cette voie. C'est ainsi que la S.A.T.E.C., société d'Etat dont l'action débuta aux Antilles et commence à s'étendre en Afrique, a favorisé la constitution de coopératives agricoles suivies par ses agents techniques, la modernisation des bateaux et méthodes de pêche, l'évolution de l'artisanat. Un tel organisme n'avait été conçu que comme un ban d'essai. C'est l'ensemble du système du crédit, notamment du crédit agricole et du crédit à l'artisanat - mais aussi du crédit à l'industrie - qui devrait être refondu en s'inspirant de telles expériences.

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Point de l'ordre du jour : B.1

Sénégal

EMPLOI DE LA THEORIE DE LA POPULATION QUASI-STABLE POUR VERIFIER LA REPARTITION PAR AGE OBTENUE PAR UN RECENSEMENT OU UNE ENQUETE DANS LES PAYS OU L'ETAT-CIVIL EST DEFECTUEUX : APPLICATION AU SENEGAL

Par Louis VERRIERE,
Administrateur à l'I. N. S. E. E.,
Chef du Service de la Statistique
et de la Mécanographie, Dakar

Les mémoires rédigés à l'intention de la Conférence des Nations Unies sur l'application de la science et de la technique dans l'intérêt des régions peu développées sont des documents de travail. Ils sont publiés tels qu'ils ont été présentés et les assertions et opinions qu'ils contiennent sont celles de leurs auteurs.

NOTES

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Emploi de la théorie de la population quasi-stable pour vérifier la répartition par âge obtenue par un recensement ou une enquête dans les pays où l'état-civil est défectueux
Application au Sénégal

Louis VERRIERE - Administrateur à l'I.N.S.E.E.
Chef du Service de la Statistique et de la Mécanographie - DAKAR -

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1- La répartition par âge d'une population est certainement la plus riche de signification en même temps que la plus dépourvue d'ambiguïté ou d'arbitraire. Sa connaissance est indispensable pour toute étude démographique ainsi que pour l'élaboration des plans de programmes de développement (scolarisation, emploi, évaluation des besoins...)

2- Dans la plupart des pays en voie de développement, on ne dispose pas d'une bonne répartition par âge. Les raisons en sont bien connues. En premier lieu, il faut citer le fait que pour un bon nombre des habitants, surtout parmi les adultes et les vieillards, la date exacte de la naissance est inconnue. L'âge est alors déterminé, soit par la méthode du "calendrier historique" soit estimé par l'agent recenseur. Il s'ensuit que l'on rencontre de remarquables exemples de l'attraction des nombres ronds. On peut encore mentionner au nombre des causes classiques d'erreur=

- la Sous-estimation des jeunes enfants
- les omissions de filles ou de femmes
- la substitution à un enfant décédé d'un nouveau-né qui prend le même prénom

3- On est donc amené à ajuster les répartitions obtenues en dépouillant les résultats des recensements ou enquêtes. Tous les procédés mécaniques, moyennes mobiles notamment, présentent des inconvénients. La méthode présentée plus loin offre des avantages certains et peut être utilisée dès que l'on dispose d'un certain nombre de données assez faciles à obtenir.

4- L'application de cette méthode ne suppose en effet, la connaissance que de :

- l'effectif total de la population à deux époques

Compte-tenu des corrections pour tenir compte des mouvements migratoires, il est alors possible de déterminer le taux naturel d'accroissement.

- le taux de la mortalité infantile (il peut être déterminé assez facilement par une enquête directe)

5- Il faut admettre les hypothèses suivantes :

- la courbe des quotients de mortalité par âge est entièrement connue dès que la mortalité infantile est connue(voir à ce sujet : United Nations Age and sex patterns of mortality-Model life-tables for underdeveloped countries- Population Studies Nº 22 - New York 1955-)

- La population peut être assimilée à une population stable Il suffit que l'on puisse admettre le maintien de la fécondité à un même niveau depuis un certain temps. Cette condition est pratiquement toujours remplie.

6- Partant d'un effectif à la naissance de 100.000 (le calcul peut être conduit soit pour les deux sexes réunis soit pour chaque sexe séparément), on peut calculer en appliquant les quotients de mortalité par âge Qx les effectifs des survivants aux différents âges Vx.

Si l'on admet que la mortalité générale et la fécondité générale ne varient pas trop largement, le taux d'accroissement naturel i peut être assimilé à une constante. La population s'accroît donc tous les ans au taux i et les naissances également puisque la pyramide a une forme stable.

La répartition par âge peut alors être calculée par la formule :

$$E_x = V_x \ (1 + i)^{100-x}$$

où E_x désigne l'effectif d'âge x

V_x les survivants d'âge x de la courbe de survie

i le taux annuel d'accroissement naturel

7- La répartition par âge ainsi calculée est celle de la population stable qui aurait la mortalité et la fécondité observées dans le pays considéré. Le rapprochement avec la répartition observée permet de mettre en évidence les anomalies qui peuvent parfois trouver une explication, les omissions systématiques et les erreurs accidentelles.

8- Application au Sénégal : L'enquête démographique de 1960-61 n'a pas encore pu être exploitée mécanographiquement- On a été amené pour répondre à des besoins urgents à effectuer manuellement des dépouillements provisoires- La répartition obtenue (deux sexes réunis) pour la population africaine est la suivante (seuls ces groupes avaient été retenus car il s'agissait essentiellement de déterminer la population d'âge scolaire) =

0 - 5 ans	22,5
6 - 13	19,2
14 - 19	8,7
20 - 59	43,9
60 et plus	5,7
	100,0

Il a été procédé au calcul de la structure de la population dans les trois hypothèses suivantes :

H1 = mortalité infantile 15 % (modèle Nº 22)
taux d'accroissement annuel 2,31 %

H2 = mortalité infantile 20 % (modèle Nº 27)
taux d'accroissement annuel 2,31 %

H3 = mortalité infantile 18 % (modèle Nº 25)
taux d'accroissement annuel 2,56 %

Les résultats obtenues sont les suivants :

Age	H1	H2	H3
0-4 ans	164	184	184
5 ans	28	30	30
6-9 ans	104	110	112
10-13 ans	94	98	99
14 ans	22	23	23
15-19 ans	101	104	104
20-29 ans	163	164	163
30-39 ans	120	116	114
40-49 ans	87	79	78
50-59 ans	60	51	51
60 ans et plus	57	41	42
Total ...	1000	1000	100

L'hypothèse la plus vraisemblable pour le Sénégal est H3 ; mais, de toute façon, on peut constater que ces trois répartitions ne sont pas très différentes (H2 et H3 donnent même des résultats pratiquement identiques)-

La comparaison des résultats observés et des résultats calculés avec l'hypothèse H3 permet de faire un certain nombre de remarques.

	Répartition observée	Répartition calculée (H3)
0-5 ans	22,5	21,4
6-13	19,2	21,1
14-19	8,7	12,7
20-59	43,9	40,6
60 et plus	5,7	4,2
	100,0	100,0

La plus importante concerne les groupes 6-13 ans et 14-19 pour lesquels on observe une divergence sensible entre les résultats observés et calculés ; le groupe 14-19 ans, notamment, serait très nettement sous-estimé. Il n'est pas encore possible, la répartition par année d'âge n'étant pas encore disponible , d'essayer d'expliquer ce phénomène. On peut penser,par exemple, que les agents recenseurs ont eu tendance à attribuer l'âge de 20.ans à de nombreux jeunes gens de 17, 18 ou 19 ans ignorant la date exacte de leur naissance.

La confrontation entre les résultats observés et calculés sera donc encore plus instructive lorsque les résultats année par année d'âge seront connus.-

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Point de l'ordre du jour B.1

Roumanie

METHODES D'ESTIMATION A LONGUE ECHEANCE DU NOMBRE DE LA POPULATION ET DE SA STRUCTURE PAR SEXE ET PAR AGE

Par le Professeur Mircea BIJI,
Directeur général
de la Direction Centrale de Statistique

Les mémoires rédigés à l'intention de la Conférence des Nations Unies sur l'application de la science et de la technique dans l'intérêt des régions peu développées sont des documents de travail. Ils sont publiés tels qu'ils ont été présentés et les assertions et opinions qu'ils contiennent sont celles de leurs auteurs.

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METHODES D'ESTIMATION A LONGUE ECHEANCE DU NOMBRE DE LA POPULATION ET DE SA STRUCTURE PAR SEXE ET PAR AGE

Prof. Mircea Biji, Directeur Général de la Direction Centrale de Statistique

1. La connaissance du nombre de la population, de sa structure, de l'effectif des contingents en âge de travailler, des contingents en cours de scolarité, de la structure par sexe et par âge, constitue un élément fondamental pour l'élaboration des mesures de politique économique, sociale et culturelle.

2. La connaissance de l'effectif des contingents en âge de travailler est imposée par la nécessité d'assurer l'utilisation complète et rationelle de la force de travail dans le processus du développement planifié de l'économie nationale. Toute une série d'investissements pour: crèches, foyers, écoles élémentaires, moyennes et universités dépendent des effectifs des contingents en âges prescolaire et scolaire. Le chiffre de la population à venir et sa structure par sexe et par âge sous le double aspect de leur rôle dans la production et dans la consommation, forment un élément primordial pour la planification à longue échéance ainsi que pour la planification courante.

3. En raison de ces nécessités, dès le moment où l'on introduit dans la République Populaire Roumaine une économie nationale dirigée d'une manière planifiée, on y effectua des calculs estimatifs quant au chiffre de la population. Il y a peu de temps encore, la période d'estimation était ordinairement de 5 ans, ce qui correspondait précisément à la durée des plans quinquennaux de développement économique.

4. L'élaboration d'un plan de développement à longue échéance de l'économie nationale, pour 20 ans, a également exigé l'extension des calculs estimatifs de la population future de la Roumanie, jusqu'en 1980. Si durant la première période on a obtenu des résultats prompts et satisfaisants, par des méthodes globales, fondées sur des hypothèses d'accroissement de la population en progression arithmétique ou géométrique, l'estimation de la population pour les années suivantes réclame actuellement l'emploi d'une méthode qui permette non seulement d'établir le chiffre total de la population, mais aussi sa structure par sexe et par âge chronologique pour chaque année de la période incluse dans le plan de perspective.

5. Les calculs de ce genre sont effectués dans notre pays selon la méthode des composants, que l'on appelle aussi méthode analytique. Elle consiste à estimer l'effectif de chacun des deux sexes, séparément, année par année, jusqu'à la fin de la période envisagée, en faisant intervenir dans les effectifs de la population de l'année de base, les coefficients de survie, calculés à l'aide des tables de mortalité dressées à cette fin. L'emploi de cette méthode suppose:

a) la connaissance de la distribution de la population par sexe et par âge chronologique, pour l'année envisagée. Si l'effectif de la population et sa distribution par sexe et par âge chronologique ne sont connus que pour une année antérieure à celle où l'on effectue les calculs, il est nécessaire

que le nombre de la population autant que sa distribution par sexe et par âge soient estimés pour l'année de base à l'aide de méthodes adéquates. Au cas où l'on ne connaît la distribution de la population que par groupes d'âge quinquennaux l'estimation en perspective ne saurait être faite que par groupes d'âge quinquennaux également;

b) l'existence des tables de mortalité aux fonctions démographiques respectives dont on déduit les coefficients de survie. Les tables de mortalité doivent être recalculées compte tenu de l'hypothèse ou des hypothèses formulées sur le taux que marquera la mortalité générale de la population au cours de la période considérée;

c) la connaissance de l'évolution - pour une période plus longue - des principaux éléments démographiques, à savoir: taux de natalité, de fécondité générale et spécifique, de mortalité générale et spécifique et de migration.

6. La méthode des composants ne donne des résultats satisfaisants que si l'estimation respecte certaines conditions principales, à savoir:

a) Ne pas dépasser une période allant de 15 à 20 ans. L'expérience a prouvé que les estimations faites pour une période plus longue s'écartent trop de la réalité, étant donné l'intervention de fluctuations accentuées, notamment dans le taux de fécondité générale féminine, par rapport aux suppositions initiales. Pour ce qui est de notre pays, les calculs n'y dépassent pas cette limite, qui d'ailleurs correspond en général à la période envisagée par le plan de développement de perspective de l'économie nationale;

b) Elaborer des hypothèses scientifiquement déterminées sur le niveau futur des éléments démographiques considérés dans les calculs. Cette élaboration comporte ainsi une analyse minutieuse de l'évolution des éléments démographiques et de leur niveau actuel, ainsi que des effets produits par l'action des facteurs d'ordre économique, social et démographique sur les éléments considérés, compte tenu de l'étroite interdépendance de ces phénomènes. Cela suppose l'existence d'enquêtes démographiques, qui doivent déceler le sens de l'influence exercée par les facteurs économiques et sociaux sur les phénomènes démographiques. Dans notre pays et dans les circonstances créées par l'existence d'un plan de perspective, l'estimation du niveau futur des éléments démographiques se réalise compte tenu également de ces prévisions des plans qui agissent sur l'évolution du taux de fecondité, du taux de mortalité et de migration.

c) Effectuer des calculs estimatifs sous plusieurs variantes, à hypothèses différentes sur la tendance du taux de fecondité, du taux de mortalité et de migration. La nécessité d'avoir plusieurs variantes de calcul découle des difficultés inhérentes rencontrées lors de la détermination des éléments démographiques considérés. D'habitude, on effectue les calculs sous deux variantes; il est toutefois recommandable de multiplier leur nombre si une documentation ample et précise des phénomènes démographiques fait défaut.

7. a) Les éléments demographiques à considérer lors des calculs de perspective du nombre de la population et de sa structure par sexe et par âge sont:

I. fécondité des contingents féminins en âge de réproduction (15 - 44 ans ou 49 ans si le groupe d'âge 45 - 49 contribue d'une manière appréciable

à la reproduction de la population);

II. mortalité générale de la population;

III. migration (émigration ou immigration, selon le cas);

b) Les calculs effectués dans notre pays ne prévoient pas d'hypothèse sur la migration, étant donné que durant l'époque entre les deux guerres mondiales, aussi bien qu'au cours de la période d'édification du socialisme, la migration extérieure a été et continue d'être si peu importante qu'elle ne saurait porter une influence sensible sur le régime de reproduction de la population de la République Populaire Roumaine. Dans le cas des pays à immigration ou émigration entraînant de larges masses de population, il est de toute évidence qu'elle doit être considérée dans les calculs estimatifs. Cela oblige à formuler des hypothèses justes sur le nombre, le sexe et l'âge des personnes migrantes et à estimer les effets manifestés par ces facteurs sur le taux de fécondité de la population féminine en âge de reproduction.

c) En Roumanie, des deux facteurs considérés, celui qui peut être établi plus facilement, est le niveau futur de la mortalité générale. L'hypothèse formulée doit considérer d'une part que le taux de mortalité générale a marqué dans notre pays, au cours de la période d'après guerre, une évidente tendance de baisse considérable, et d'autre part que le rythme de baisse du taux de mortalité générale se ralentit au fur et à mesure que l'on approche un certain niveau, qu'il ne saurait dépasser qu'après un bon nombre d'années.

d) La détermination du taux futur de fécondité générale soulève des problèmes autrement complexes, car le comportement démographique de la population est influencé par de nombreux facteurs d'ordre différent: économique, social, etc. Aux fins d'approfondir la documentation scientifique de cette question, on prépare en Roumanie une enquête demographique appelée à relever l'influence que font subir au taux de fécondité générale, l'accroissement des revenus de la population, l'augmentation des allocations d'Etat pour les enfants, la croissance du fonds de logements, les constructions de crèches, foyers du jour, l'encadrement dans la production de la population féminine apte à travailler, la formation et le développement des villes,etc.

8. L'estimation du nombre de la population et de sa structure par sexe et par âge, pour la période 1963 - 1980, a été faite en Roumanie sous deux variantes, à savoir:

a) La variante A, appelée maximum, fondée sur l'hypothèse que le taux de fécondité des contingents féminins féconds sera, durant toute la période envisagée, égal à celui de 1961. Cette hypothèse est ordinairement formulée dans les calculs de ce genre, qui est justifiée par le fait que l'estimation se fonde sur un élément démographique connu;

b) La variante B, appelée minimum, repose sur l'hypothèse que le taux de fécondité générale marquera jusqu'en 1970 une légère baisse, estimée à 1/2 du rythme moyen de baisse enregistrée entre 1957 - 1960. A partir de 1970 le taux de fécondité des contingents féminins féconds considéré, fut celui que l'on a estimé pour 1970, maintenu constant jusqu'à la fin de 1980.

9. On a jugé bon de considérer dans les deux variantes une même hypothèse quant au taux de mortalité générale, que l'on suppose égal à celui de 1961. Cette hypothèse trouve sa justification non seulement dans les raisons pré-

sentées à alinéa 7c) mais aussi dans le fait que si le taux de mortalité infantile se réduit durant les années à venir, le taux de mortalité des groupes d'âge avancé, par contre, devra augmenter, par suite de l'accroissement des effectifs de ces contingents dû à l'augmentation de la durée moyenne de vie au cours de la période d'après guerre.

10. Principalement, l'analyse de l'évolution marquée jusqu'à présent par les deux éléments démographiques considérés dans les calculs, indique que l'évolution future du phénomène démographique envisagé devra approcher plutôt les résultats des calculs obtenus par la variante B que par la variante maximum.

11. Une série de constatations justifient les hypothèses adoptées lors de l'élaboration de la variante B. La première constatation consiste dans le fait que le taux de fécondité générale a atteint un niveau au-dessous duquel il descend très lentement et au cours d'une periode plus longue que celle que l'on a considérée dans les calculs. La deuxième concerne l'évolution du taux de fécondité spécifique, par milieux de vie sociale. Si le taux de fécondité générale de la population rurale a baissé entre 1956 - 1960, à 53,8 % du niveau atteint entre 1920 - 1924, le taux de fécondité générale de la population urbaine féminine n'est descendu qu'à 82,7 % par rapport à la même période. Les analyses effectuées nous autorisent à supposer que pendant les années à venir le rythme de baisse du taux de fécondité de la population rurale féminine sera ralenti. D'autre part, si pendant l'époque entre les deux guerres mondiales le taux de fécondité générale de la population urbaine féminine n'a pu exercer d'influence sensible sur le niveau de la fécondité générale; dorénavant, par suite de l'augmentation du chiffre de la population urbaine par rapport à la population totale de la République Populaire Roumaine, l'influence du taux de fecondité de la population urbaine féminine sur le niveau de la fécondité générale s'accentuera.

12. Les calculs effectués dans la variante A trouvent leur justification non seulement dans la généralité du procédée, mais aussi dans le fait qu'à partir de 1965, des contingents bien plus grands que par le passé devront entrer aux rangs de la population féconde, par suite de l'accroissement de l'excédent naturel enregistré entre 1949 - 1958 qui marque un surplus allant de 50 à 100 mille. Le chiffre accru de contingents féconds, ainsi que le progrès des facteurs qui y porteront une influence directe et positive (voir l'alinéa 7d) sont à même d'annihiler les fluctuations du taux de fécondité féminine générale intervenues durant l'époque d'estimation et de maintenir là-dessus le niveau atteint en 1961.

13. Il est à notre avis parfaitement justifié de maintenir constant pour toute la période envisagée dans les calculs, le taux de mortalité générale enregistré en 1961, étant donné également la constatation qu'après une forte diminution pendant la période d'après guerre, le taux de mortalité générale autant que celui de mortalité infantile des dernières 5 années, n'ont fait qu'osciller autour des mêmes valeurs. Cette conclusion est encore valable pour ce qui est du niveau atteint, durant les dernières 5 années, par le taux de mortalité spécifique, envisagée par population urbaine et rurale.

14. Une fois les variantes déterminées, on a effectué le calcul du nombre de la population et de sa structure par sexe et par âge, pour chaque année de la période considérée. Le point de départ en a été fourni par le nombre et la distribution par sexe et par âge de la population, enregistrés lors du

récensement du 21 février 1956. La population dénombrée à cette date, fut rapportée par sexe et par âge, à la date de 31 décembre 1961, en ajoutant au sexe respectif le chiffre des nés-vivants et en déduisant les décès de l'effectif du sexe et de l'âge respectifs. Le chiffre qui en résulte représente la population actuelle; on y a fait ensuite intervenir, année par année, jusqu'en 1980, des coefficients de survie établis pour chaque sexe et chaque âge à l'aide des tables de mortalité calculées pour le 31 decembre 1961. Chaque année, on a ajouté au chiffre obtenu par le calcul ci-dessus, les nés-vivants estimés dans les deux variantes, à la suite de l'intervention des coefficients de survie, en les faisant avancer en âge à mesure que les années s'écoulaient.

15. Le nombre des nés-vivants, dans la variante A, a été obtenu en multipliant l'effectif du contingent féminin fécond de chaque année, par le taux de fécondité générale moyenne de 1961; dans la variante B ce chiffre résulte de la reduction, selon l'indication de l'alinéa 8b) du nombre des nés-vivants obtenu dans la variante A.

16. Bien que les résultats enregistrés soient à même de satisfaire aux nécessités d'élaboration du plan de développement économique et social en perspective de la République Populaire Roumaine, par la possibilité qu'ils offrent de connaître les contingents principaux de la population, néanmoins la satisfaction complète des exigences du plan économique de perspective réclame d'autres calculs encore, qui concernent:

a) L'effectif des populations urbaine et rurale pour les 20 années suivantes. De pareils calculs sont effectués à présent dans notre pays. Les mêmes hypothèses y sont formulées, mais on a fait intervenir dans les calculs un troisième élément démographique, à savoir le déplacement d'une partie de la population rurale vers les centres urbains, par suite du processus d'industrialisation socialiste du pays;

b) L'estimation de la population de chacune des 16 régions administratives du pays, dont on ne saurait se passer lors de la défalcation par région du plan de perspective.

17. Le phénomène démographique est un phénomène complexe, dont l'évolution est déterminée par une multitude de facteurs. Par conséquent, son calcul séparé, si rigoureusement précises que soient les hypothèses acientifiques adoptées, doit être constamment confronté avec l'évolution même des autres facteurs qui lui font subir leur influence. Aussi l'estimation en perspective du nombre de la population et de sa structure par sexe et par âge doit-elle être révisée tous les ans afin d'y apporter les modifications qui paraîssent nécessaires. Il est d'autant plus recommandable d'agir de la sorte dans des pays qui, comme la Roumanie, traversent une période de profondes et rapides transformations économiques, sociales et culturelles, qui influencent profondement l'évolution du phénomène démographique. Nous envisageons là-dessus, par exemple, les processus d'industrialisation, de formation et développement des villes, d'intensification de la production agricole réorganisée sur des fondements coopératifs, le relèvement systématique du niveau de vie, l'essor de la révolution culturelle, etc. avec les transformations qu'ils entraînent quant aux occupations, professions, comportements, habitudes nouvelles de la population et ainsi de suite.

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PROBLEMS OF THE ESTIMATION AND RATIONAL UTILIZATION OF HUMAN RESOURCES IN THE PROCESS OF ECONOMIC DEVELOPMENT

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PROBLEMS

OF THE ESTIMATION AND RATIONAL UTILIZATION OF HUMAN RESOURCES IN THE PROCESS OF ECONOMIC DEVELOPMENT

Prof. Eng. Simion Ţaigăr ,Chairman of the State Committee for Problems of Labour and Wages

The importance and conditions for the rational use of human resources

1. It is a well-known fact that the rational and full utilization of the man-power resources has a particular importance, being one of the main factors of the economic power of any country, and of the living standard of its population; notice is also taken of the fact that labour is an everlasting and natural condition of human life, the source of creation of all material and cultural values, and at the same time the fundamental condition of the development of human society, that in the process of work, the people turn to account the natural wealth, produce all the goods necessary for their living, create and improve the working tools, broaden their technical and scientific knowledge, enrich their experience in production, thus ensuring the increase of production,labour productivity and social wealth.

2. Considering the numerous problems arising in connection with the rational utilization of the man-power resources, it seems to us ureful to recall some of the main aspects in this field.

3. The greater the number of productive workers, and the higher the productivity of their work with the aid of the means of production in operation, the greater the social produce, the social wealth , the level of satisfying the material and cultural requirements of the people, the shorter the duration of work, the easier the working conditions and more perfect the free human living conditions at a corresponding organization of social-economic life.

4. We can express the higher level of productive activity of the population of a country by " the productivity of the working day of society," which is determined by the number of those producing material goods (means of production and consumer goods) and by their labour productivity. Taking into account the number of days worked on an average during a year by a producer, we will see the productivity of the working year of society, which will also express to what extent the days of a year are productively utilized. Referring to the productivity of the working day or year of society to the population of a country, we see the index of efficiency using the human resources in a certain country.

5. From those stated above we can note that at an unchanged labour productivity, the social produce, the national wealth (and therefore also the possibility of raising the people's living standard) will be the bigger, the greater the number of producers of material goods. This naturally depends on several factors among which an important place is occupied by

the volume of production, its structure and especially its growth, the rate at which it develops.

6. The volume and structure of production are influenced by the specific character of the natural wealth, by the degree of processing the natural wealth, by the extent to which a smaller or bigger quantity of live work is added to the unprocessed natural wealth. If work is added only for extract from the subsoil (for instance ores, oil) or to obtain from the surface of the soil (for instance wood) or from animals (for instance leather, wool) certain raw materials, the value produced is small, the degree of using the labour force resources reduced and the rate of increasing national wealth and the people's living standard very low. In foreign trade, the exchange of such products with others of a high degree of industrial processing is disadvantageous ,because the native labour force is not rendered profitable, considerable quantities of such products are necessary for paying some imported products in more reduced quantities,but in which the labour force of the respective countries is rendered profitable to a great extent. The increase in the degree of processing natural wealth permits the creation of products of higher values from the same quantity of raw materials; in this way the labour force resources are rendered profitable to a higher level, accelerating the rate of development of the national economy and of improving the people's living stabdard.

7. A distinction is made between the number of the able-bodied population , who can be drawm in social production and influences the economic potentiality of the country, the number of those effectively employed in work (which does not coincide with the number of the able-bodied population)and the number of those who are employed in the sphere of material production and who influence the actual economic power of the country.

8. The conditions of development of a country are the more favourable the more important is the part in the able-bodied population participating in materialized labour. Conversely the bigger the number of those who do not participate at all in materialized labour as well as those who participate with a reduced number of days per year, the weaker the utilization of the man power resources of the society, the bigger the part lost by the potential production and the smaller the rate of development of the country.

9. The bigger the part of the labour force used by society in the sphere of material production, the bigger the degree of the use of man power resources of a country. One could take as an indicator of the degree of using the labour forces employed, the relation between the number of those employed in material production and the total number of those employed in materialized labour (the rest being occupied in the sphere of health, education, culture, various jobs, administration and other unproductive fields). However the most general indicator of the degree of using the man-power resources is the relation between the number of participants in material production, and the total number of the population.

10. The economic efficiency of the utilization of labour forces is not the same in all the branches of the national economy. It is known, for instance, that in industry, with the same outlay of livework one can obtain a production of a bigger value than in agriculture. Sensible differences can also be remarked between the various industrial branches; for example, labour productivity in the machine building or the petrochemical industry is obviously higher than in the ore extraction industry of the

industry of construction materials. These differences in the level of labour productivity between various economic or industrial branches are determined by the degree of the processing of the products, by the extent to which the natural resources underwent more simple or more complex processing, by the quantity of work incorporated in the products up to their final stage, by the level of qualification of this work, by the volume, technical level and complexity of the means of work of human labour.

11. From what we have shown above, it comes out that the economic power of a country depends to a great extent on the proportions in which the productive workers are judiciously employed in various economic branches, industrial branches respectively. These proportions cannot be selected, in a given period, in a subjective way, but are objectively determined by the structure of the national economy, by the structure of production in that period of time. However, these proportions can be changed within a shorter or a longer period of time through an adequate economic policy of developing the branches, and respectively, the sub-branches with a higher labour productivity. This process is visibly taking place in the countries which have stepped on the road of socialist industrialization, using to an ever greater extent their natural resources, their specific conditions, for solving this problem of particular significance.

12. We must stress that the development of industry creates conditions for an increase in labour productivity also in agriculture (just as in other branches) making available means of mechanization and electric power, which enable the carrying out of the whole volume of operations with less live work. At the same time, agricultural production also increases as a result of the better quality of the operations made with the aid of mechanized means and the use of chemical means (fertilizers, herbicides, etc.) put at disposal by industry, of irrigation work, etc. The labour forces which have thus become available can be utilized for the development of the industry, of constructions, as well as for other branches of productive activity. The growth of the number of personnel in industry, on the basis of the decrease of those in agriculture is therefore a progressive process, along the line of the superior utilization of man-power resources

13. Under certain circumstances of interest is the completion of the work in agriculture with work within the activity of industrial processing of the raw material and of the agricultural produc s. Considering the fact that the labour forces in agriculture are not used to the same extent all through the year, there appear periods of reduced use, failure to use part of the labour forces. The use of these forces for the processing up to a certain stage of the raw material and agricultural produce raises the efficiency of the utilization of the man-power resources. At the same time, savings are achieved in the field of transport, and there are smaller losses linked with the delay of the processing and transport. This problem is solved in accordance with the concrete conditions of each country, such as, for instance, the existence or non-existence of certain industrial enterprises for superior processing, modernly equipped and with available capacities, the extent to which the ensurance of the necessary labour forces, or, conversely, the use of the available labour forces arcuse more serious problems in industry and agriculture, the possibilities and the policy of investments, etc.

14. Important is also the way in which the labour forces are distributed within a branch or a sub-branch, in the direction of guiding them mainly towards those enterprises in which the same products are turned out with less social expenditure, and with a higher labour productivity.

15. For a given total number of employees, the bigger the specific weight of the employees who most directly condition the volume of production and its value, the higher will be the degree of utilization of labour forces; here we take into account the productive workers and the experts creating these material values together with these workers, men of science, engineers, technicians, designers, laboratory assistants, etc. The book-keeping financial and administrative personnel, although necessary for the creation of conditions and for keeping the economic-financial effects of the productive activity, cannot make the same contribution to material production as the above mentioned personnel, and consequently, the progress in organizing the work of the technical-administrative personnel must lead to the decrease of the specific weight of the administrative book-keeping and financial personnel and to the increase of the participation of technical cadres.

16. We have mentioned the fact that the economic efficiency of the utilization of the man-power resources of a country is determined not only by the number of participants in material production, but also by the productivity of their work; the higher the labour productivity of the same number of productive workers, the bigger their economic results. The increase in labour productivity is considered as the most important factor of the development of society, of raising it to higher stages. In the countries with a high rate of production increase ,as for instance the socialist countries, the bigger part (as a rule 2/3 and more) of the growth of production is ensured by raising labour productivity, and the other, smaller part, by raising the number of producers; in these countries the rate of production increase surpasses by far the rate of increase of man-power resources.

17. In its turn, labour productivity depends ,of course,on a whole series of factors of which we mention especially: the degree of endowment with machines, equipment, mechanisms (fixed funds) ,their technical level, the degree of utilization of such means, the progress obtained in perfecting the raw materials and materials , the level of qualification of the workers and technicians, the way of organizing production and labour, the working methods used, the material incentive of the participants in production , in obtaining best results in work, their attitude towards work, their elan and initiative in work. Of course, in certain branches ,one cannot neglect the influence of the natural conditions either.

18. The social organization of production, the character of the relations of production exert a most important influence on the national utilization of the man-power resources, both as regards the possibility of drawing in work , and especially in productive work, an as big as possible part of the able-bodied forces, and as regards the ensurance of the conditions for more rapidly increasing labour productivity.

19. The organization of production, as well as of the whole economic life by society in general, as possessor of all the means of production,has incontestable advantages compared with the organization which corresponds to the activity of a whole number of isolated producers, each of them acting for his own interest and very often against the interests of others. The state as organizer of production and collective owner of the means of production, has at its disposal all the means and key-factors of the economy, so that it is capable to mobilizedwith maximum of economic efficiency, on the basis of a unitary plan, all the natural resources, material and financial means, as well as its man-power resources; there can no longer appear economic crises, the non-use of part of the production capacity, total or partial unemployment,etc. Under such conditions, the state can impose a high rate

of development of the national economy, utilizing as fully as possible all production capacities and man-power resources, can take all the necessary measures for constantly raising labour productivity, can ensure the best conditions for the material and moral incentive of its members, at the same time being able to rely on their working elan, inspired by the conscience that they work for themselves, for their society.

Methods of determining the man-power resources and of their planned utilization in the process of economic increase

20. The planning of work on the ensemble of the national economy ensures the planned distribution of the man-power resources among the economic branches and the territorial units of the country and creates the pre-requisites for an as economical and productive use of them as possible, in each enterprise or economic unit.

21. A main instrument for the planning of the utilization of the man-power resources is the balance of man-power resources. The balance of man-power resources enables the determination of the country's man-power resources, and the analysis of their degree of utilization in various branches of the economy. With the aid of the balance of the man-power resources, and taking into consideration the necessities of the development of the national economy, one can determine the possibilities of ensuring all branches the necessary man power , bring to the fore the existing reserves of man-power in view of attracting them in production (house-wives, for instance), re-distribute the man-power among various branches and regions for its more rational use, determine the proportions of the man power resources and of the population in urban and rural areas, respectively.

22. The main components of the bal ance of the man-power resources are the following :

a. The man-power resources, that is the number of able-bodied citizens, their structure according to age, their territorial repartition, etc. This part of the bal ance includes the data regarding the population at the age apt for work (16 to 59 years for men and 16 to 54 years for women) from which one has to subtract the population at the age apt for work but disabled (for instance invalids, etc.) .To this result is added the population above the age apt for work, which is employed. Thus, one can obtain the total number of citizens engaged in the national economy ;

b. The utilization of man power resources. Here we present the data regarding the population employed in :

i) the sphere of material production (industry, constructions, agriculture, forestry ,goods transport, telecommunication for the sphere of material production and other branches which directly contribute to the creation of material production),

ii) the unproductive sphere (unproductive transport, unproductive telecommunications, civic and housing administration, and other unproductive services , education ,culture, arts, science and health protection, social assistance and physical culture, financial and insurance institutions, administration, political and social organizations),

iii) both in the sphere of material production and in the unproductive sphere the data are given separately for the state sector and

separately for the cooperative sector.

c) The other resources - comprising pupils and students from 16 years of age on, and other categories of the population at the age of work, housewives, military men, etc.

d. Data regarding the man power resources and their utilization are obtained on the basis of general or partial censuses of the population, on the basis of demographic calculations, statistical estimations, inquiries, and statistical monograph , family budgets drawn up for various categories of families of employees or peasants.

23. In keeping with the aim pursued, the balance of the man power resources is worked out both for shorter periods of time (statistical balance) and for future periods of the plan (plan balance); over the whole national economy and by territorial units (regions, districts, towns, etc.); by urban and rural areas ; by sexes.

24. Apart from the balance of man-power resources, important is also the working out of the balance of qualified labour force and of experts, on the basis of which one can establish the necessary number of pupils to be trained for various trades, technical and economic specialities, in keeping with the future necessities of the national economy.

25. The ensurance of the corresponding level of general culture and professional training, specialization and systematic increase of the workers' qualification in keeping with the tasks set by the technical progress, is achieved in all kinds of schools, courses for qualification and for raising the training of cadres of all levels, on the basis of the state plan of training cadres.

26. The following methodological principles are taken into account when drawing up the balance of the man-power resources:

a. For determining the number of people necessary for each branch, one must take into consideration: the volume of activity planned for the respective period (the volume of industrial output, the volume of building and assemblage works, the volume of transport, the volume of the tasks in elementary, secondary and higher education, etc.) and the volume of the productivity of planned work (or the norms of practised servicing).

b. The distribution of the population employed on social-economic sectors is made in accordance with the form of property over the means of production in each sector (the state and the cooperative sector).

c. The establishment of the figures in the urban and rural areas is achieved by considering the domicile of the persons.

The way of using the man-power resources in two different periods of the evolution of Rumanian economy
(Before and after World War II)

27. The unsatisfactory use of active labour force in the period 1926-1938 (which in 1930 was estimated as representing about 58 per cent of the total number of the population [a]) was influenced by the low level of the

a) Statistical Yearbook of Rumania vol. II, 1939, page 38 and 169

industrial and agricultural production in that period of time. The essential factors which brought about this situation were numerous and complex.

28. Although Rumania possessed a varied basis of resources of useful raw materials, the industry was poorly developed, reduced volume and inadequate structure. Of the whole number of active citizens registered in 1937, only 7.2 per cent were employed in industry [b] ; over 63 per cent of the total number of wage earners engaged in the processing industry in 1938 were employed in the following branches: food , textiles, leather, timber, building materials [c] and less than 6 per cent in the machine building branch. [d]

29, Therefore, apart from the relatively reduced volume of production, industry had a structure, which - mirroring the preponderence of the branches of the consumer goods production and the lack of heavy industry and first of all of the machine building branch which deserved due attention - could enable only to a very small extent its own development, and to an even smaller extent, the development of the other branches. The weak industrial development led to the fact that certain important industrial products (oil, timber, metals) were incompletely processed and turned to account, important quantities of them being exported as raw materials (especially oil and timber [e]). Because of this, the value of the products turned out in a working time unit in the industry of our country in that period of time was very low in comparison with the industry of other countries. A characteristic feature of Rumania's industry in that period of time was the poor endowment of labour with machines and equipment, with motive power. [f]

30. Deprived of the support of a developed industry, agriculture which comprised 78.2 per cent of the country's active population [g] , was also poorly equipped with agricultural machines and implements, because of which the agro-technical level of the agricultural operations was also low. The technical endowment of work in agriculture is proved by the fact that in the period 1935-1938 there was one tractor for 4,298 hectares of arable land [h] , a sowing machine for 333 ha [h] , a plough for 3 farms [h] and a harrow for four farms. [i] The main produces of the agricultural vegetal production were cereals, especial wheat and maize [j] . The production of technical plants such as sun flower, sugar beat , flax, hemp, etc. valuable from the economic point of view, was very small in relation to the requirements of the population.

31. In comparison with the agricultural and arable area of the country, the number of live stock was also small, and their productivity was also low. An important part of the agricultural produce was exported in an unprocessed condition. Considerable quantities of cereals (between 1 to 3.5 million tons) [k] were exported as such instead of being used in the branch of cattle breeding for increasing the production of meat; milk, wool, eggs, etc., and more fully using the labour force in agriculture.

32. Taking into account the unsatisfactory proportions between industry and agriculture, and the fact that the contribution to the total social produce of a person engaged in agriculture was on an average several times smaller than in industry (and even that at a low level), social productivity of labour

b) Statistical Yearbook of Rumania, vol. II, 1939 page 168.
c) Statistical Yearbook of Rumania 1939-1940, pag. 478, 479.
d) Idem page 484-485
e) Idem page 628-629
f) Idem page 478-479

was generally very low and lent a backward character to the whole economy.

33. An important part of the national income, already quite small, was exported abroad (industry belonged to a great extent to foreign capital) or was appropriated by a reduced number of native owners of capital for unproductive consumption and hoarding. What remained from the national income for investments and for being distributed to the working people in towns and villages was extremely low.

34. The totality of these causes determined the maintenance of a reduced consumption and of a narrow home market (the main strata of the population were deprived of sufficient incomes for consuming the eventual production increases) which led to the fact that industrial output witnessed numerous periods of crisis or slack, and important number of workers in towns became unemployed, and the relative over-population then existing in the villages increased and went to towns, contributing side by side with the other factors to the growth of unemployment, the reduction of real wages, the general decrease in the living standard of the working people.

35. After World War II, following the political and social transformations which took place in our country, the state could pass on to the organization of production on the scale of the whole society.This has become possible thanks to the carrying out of the land reform in 1945, and the taking over by the state of the main means of production in 1948. Beginning with 1949, the development of the national economy has taken place on the basis of the unique state plan, which provides for the mobilization of the natural resources, of the material and financial means as well as of the man-power resources of the country, in such a way as to make possible their utilization with a considerably increased economic efficiency.

36. For endowing the labour force with ever more means of production and with an ever higher technical standard, the proportions of the industrial branches have been improved year by year, granting priority to the development of the heavy industry and as part of it, giving prominence to the machine building industry.

37. In only 11 years (1951-1961) owing to the endowing of all the branches of the national economy with a considerable volume of means of production, which is reflected in the 2,8 times increase of productive fixed funds, an extra number of 1,364,000 people could be employed, that is 64 per cent bigger than in 1950, while the total population increased by only 13 per cent in the same period of time, Thus, the degree of employment of the population has sensibly increased. In industry the number of workers increased at an even more rapid rate than all over the economy, being 81 per cent bigger than in 1950. The weight of the labour force in industry, compared with the whole labour force employed, increased about 2.7 times as against 1930.

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g) Statistical Yearbook of Rumania, vol. II, 1939, pag. 166.
h) Idem, page 260.
i) Monography of the Institute of Social Sciences of 1938: 60 Rumanian villages, vol. II, Bucharest, 1941.
j) Statistical Year Book of Rumania, 1939-1940, page 403.
k) Idem, page. 628-629.

38. As a result of the equipping of the national economy with ever more new means of production and of a high technical standard, of the organization of production, of the growth of the level of qualification of the workers and specialists, of the working elan of the masses, labour productivity has increased at a sustained rate. In industry, for instance, it was 2.3 times bigger in 1961 than in 1950.

39. As a consequence of the growth of the number of workers and the increase in labour productivity, the volume of the overall industrial output went up in 1961 by 5.8 times as against 1938. Even more important increases were obtained in the main branches of industry: electric and thermic power - 12 times, methane gas extraction - 29 times, machine building and metal processing - 13 times, chemistry - 14 times, building materials - 13 times, etc. We have passed on to the more complete and superior turning to account of the raw materials, a fact which contributed to the constant growth of the employed labour forces and the increase in this way too of the social productivity of labour. The territorial distribution of industry has improved, a fact which led to the ever more judicious use of the labour force in all the country's regions.

40. The important results obtained in the development of the heavy industry and especially in the increase in the output of the machine building industry, has permitted that the other branches of the national economy, too, be endowed with a big volume of means of production with a high technical standard. An eloquent example in this respect is offered by agriculture. On December 31st ,1961, the labour force employed in agriculture possessed 77,259 conventional 15HP tractors, that is 15.9 times more than in 1938; and this apart from the numerous other modern machines and implements such as: tractor ploughs, mechanical sowing machines, combines, etc.

41. Apart from the considerable growth of the means of production, a radical change took place in agriculture also as regards the organization of work. It is known that the simplest cooperation in work results in a better organization of work, in the increase of labour productivity. Starting from the economic advantages of cooperation in work, beginning with 1949, the working peasantry stepped on the road of setting up big collective farms; in the spring of 1962 , the process of collectivization was completed all over the country, a great historical event in the life of our people. The joint organization of work soon gave fruit. Although the weight of the active population in agriculture decreased from 78.2 per cent in 1930 to about 66 per cent at the end of 1961, because a part passed on to other branches, nevertheless the annual average agricultural output of the years 1956-1960 considerably surpassed the annual average production of the years 1934-1938. The more expanded cultivation than in the past of technical plants has led to the better use of the labour forces in agriculture.

42. Parallel with the development of industry and agriculture, as a result of the growth of the material and financial means, the labour force employed also in the other branches of material production and in the unproductive sphere could steadily be increased.

43. The more rational utilization of the man-power resources and the increase in labour productivity has enabled the considerable growth of the national income (by three times compared with 1938). Consequantly the home market was steadily expanded, as a result of the increase in the income of the population and of their material and cultural standards. An illustration of the raising of the working people's welfare is the fact that real wages went up nearly twice between 1950 and 1961.

44. The estimations made in our country on the occasion of the drawing up of the plan of development of the national economy for 196 1965, and of the outline of the long term economic plan up to 1975, have shown the possibility of increasing by another one million the number of employees by 1965, (an increase which represents 33 per cent of the number of wage earners employed in the national economy in 1959) and by over 2,27o,ooo until 1975. The specific weight of industry will continue to grow; compared with 1959, industrial production will be 2.1 times bigger in 1965 and over 6 times bigger in 1975.

45.a)By 1965 the labour force occupied in agriculture will be equipped with nearly 1oo,ooo physical tractors (nearly 15o,ooo H.P.conventional tractors), that is 25 times more than in 1938. The continuous increase in the equipment of agriculture with tractors and agricultural machines will support the many-sided development of agriculture, the extension of the cultures which yield an output of a higher value and which require an increased volume of work, will permit the reclaiming of new lands with a difficult profile of work, will contribute to the growth of the output per hectare and of the agricultural output as a whole, will result in the facilitation of work and a considerable increase of its productivity in agriculture .

b) As a consequence of the growth of labour productivity, agriculture will be able to further release new labour forces necessary for the rapid development of the other branches of the national economy, putting at their disposal approximately half out of one million which represents the increase in the number of employees until 1965.

46. Parallel with the growth of the number of employees and the increase of their labour productivity, the living standard of the working people is being raised. The plan for the period 196o-1965 provides for the increase in the real wages of the workers, technicians, engineers and office-workers by about 4o to 45 per cent until 1965, compared with the level attained in the second half of 1959, and the real incomes of the peasantry will go up by about 4o per cent compared with 1959.

47. As a result, the using by the whole society of the man-power resources enables the linking of this use to the constant and rapid rate development of the entire national economy, consequently ensuring the raising of general welfare.

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КОНФЕРЕНЦИЯ ОРГАНИЗАЦИИ ОБЪЕДИНЕННЫХ НАЦИЙ
ПО ВОПРОСУ О ПРИМЕНЕНИИ НАУЧНЫХ И ТЕХНИЧЕСКИХ ЗНАНИЙ
ДЛЯ УДОВЛЕТВОРЕНИЯ ПОТРЕБНОСТЕЙ МЕНЕЕ РАЗВИТЫХ РАЙОНОВ

ПУНКТ ПОВЕСТКИ ДНЯ: B.4

БЕЛОРУССКАЯ ССР

ПУТИ ЭФФЕКТИВНОГО ИСПОЛЬЗОВАНИЯ ТРУДОВЫХ РЕСУРСОВ

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Документы, составленные для Конференции Организации Объединенных Наций по вопросу о применении научных и технических знаний для удовлетворения потребностей менее развитых районов, служат в качестве рабочих документов для этой Конференции. Они опубликованы в том виде, в каком были представлены их составителями, и их содержимое и выраженные в них мнения принадлежат их составителям (см. примечания на оборотной стороне).

ПРИМЕЧАНИЯ

1. Документы, включенные в число материалов, принятых для обсуждения на общих сессиях, будут в распоряжении делегатов Конференции на следующих официальных языках Организации Объединенных Наций: русском, английском, испанском и французском.

2. Документы, включенные в число материалов, принятых для обсуждения на специализированных сессиях, будут в распоряжении делегатов Конференции только на одном из этих официальных языков.

3. Резюме всех документов в том виде, в каком они были представлены их составителями, будут в распоряжении делегатов Конференции на следующих официальных языках Организации Объединенных Наций: русском, английском, испанском и французском.

4. До открытия Конференции документы и резюме не будут выпущены для общего распространения. Они будут опубликованы заблаговременно только в ограниченном числе экземпляров и исключительно для правительственных делегаций и других правомочных участников. Последующие опубликование и рассылка трудов Конференции будут обеспечены в соответствии с практикой Организации Объединенных Наций, как это установлено ее Издательским комитетом.

Пути эффективного использования трудовых ресурсов.

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Использование трудовых ресурсов в любой стране тем лучше и эффективнее, чем выше занятость трудоспособного населения в общественном производстве и чем выше производительность труда. на каждом участке производства. При этом важно подходить к вопросу, не только с точки зрения отдельных предприятий или отдельных районов, а с точки зрения страны в целом.

Наиболее рациональное использование трудовых ресурсов может быть обеспечено лишь на основе рациональной структуры всего народного хозяйства.

Менее, чем за полувека в СССР достигнуты крупные успехи в деле эффективного использования общественного труда. Рациональное размещение производительных сил обеспечило подтягивание экономически отсталых в прошлом окраин в особенности национальных районов /до уровня центральных промышленно-развитых районов. К настоящему времени полностью уничтожена пропасть между индустриально- развитыми районами и отсталыми окраинами, служившими аграрно-сырьевыми придатками; изжито экономическое неравенство народов и бесправное положение женщин в экономической и политической жизни страны; в промышленности и сельском хозяйстве сократились потери труда, в том числе от текучести кадров. Продвижение производства в северные и восточные районы дало громадные выгоды государству по использованию материальных и трудовых ресурсов.

Глубокие изменения в народном хозяйстве СССР привели как к увеличению числа занятых в производстве лиц, так и к общему росту производительности труда.

Объём промышленной продукции в СССР в 1959 г. вырос по сравнению с 1913 годом более, чем в 20 раз. Численность же работников в промышленности за этот период увеличилась в 4,8 раза. Основная доля прироста промышленной продукции была получена за счет роста производительности труда.

При этом в восточных районах экономический эффект использования сырья и топлива выше, поэтому в эти районы происходит плановое перемещение трудовых ресурсов из менее производительных отраслей хозяйства густонаселенных районов Европейской части СССР. Возникновение новых промышленных центров, открытие и разработка природных богатств, освоение целинных земель и развитие всех видов транспорта усиливают подвижность населения, содействуют

расширению взаимного общения народов Советского Союза. С 1913 по 1959 г.г. городское население страны возросло в 3,5 раза, а население Сибири и Дальнего Востока - в 2,5 раза при общем увеличении населения СССР лишь примерно в 1,5 раза.

В приведенных цифрах роста населения отражены два взаимосвязанных процесса, сопутствовавших индустриализации страны: с одной стороны - переход сельских жителей в города для работы в промышленности, на строительстве и транспорте и, с другой,- перемещение людей из многонаселенных районов Европейской части СССР в малообжитые, вновь осваиваемые восточные районы.

Переход значительного количества населения из сельской местности в города /лишь за 1939-1959 г.г. по стране в целом перешло 24-25 млн.человек/ стал возможным благодаря успехам механизации и электрификации сельскохозяйственного производства и роста производительности труда. Объем валовой продукции сельского хозяйства с 1913 по 1959 г.г. увеличился почти в 2,2 раза /продукция земледелия - в 2,3 раза и животноводства - в 2 раза/, а численность сельского населения за этот период уменьшилась на 18%.Возрастание эффективности использования рабочей силы сельского хозяйства состоит в том, что стало возможным уменьшающемуся относительно /а иногда даже абсолютно/ сельскому населению производить увеличивающееся количество земледельческих продуктов на увеличивающуюся массу населения.

Территориальное размещение населения в СССР осуществляется с учетом принципа максимальной экономии труда,которое достигается путем:

а/ правильного сочетания в экономических районах и городах сфер приложения труда и отраслей народного хозяйства, а также ликвидации скученности населения в крупных городах и ускоренного развития малых и средних городов. Варианты размещения новых строек и предприятий могут давать различные результаты экономии живого труда, например, чрезмерно высокая концентрация в одном районе предприятий тяжелой индустрии чревато для общества большими потерями женского труда; наоборот, следствием односторонней специализации района на отраслях легкой и пищевой промышленности является неполное использование трудоспособных мужчин;

б/ комплексного развития народного хозяйства экономических районов страны, предполагающее разностороннее использование сырьевых и топливных ресурсов; базы комбинирования и кооперирования производств на основе современной организации труда и передовой техники. Это позволяет специализировать хозяйство на таких отраслях экономики, которые обеспечивали бы максимальное производство материальных ценностей при наименьших затратах трудовых ресурсов. Специализация хозяйства при этом не должна приводить к одностороннему развитию экономики. Чрезмерно узкая специализация неизбежно привела бы к большим потерям общественного труда, в частности, вследствие роста дальних перевозок;

в/ выравнивания уровней экономического и культурного развития районов, а также жизненных условий населения, благодаря чему создаются более благоприятные предпосылки для планомерного /пропорционального/ распределения людских ресурсов по территории страны.

Разработка путей по более эффективному использованию трудовых ресурсов в народном хозяйстве связана с более полным учетом влияния фактора трудовых ресурсов на развитие и размещение производительных сил. Различие экономических условий по воспроизводству рабочей силы определяет своеобразие конкретных форм технического прогресса; нередко недостаток рабочих рук в той или иной стране вызывает ускорение технического прогресса. Применение машин, как правило, расширяет сферу использования женского труда. При наличии избытка рабочей силы в стране в целях более полной и рациональной занятости всего трудоспособного населения целесообразно развивать трудоемкие отрасли промышленности и интенсивное сельское хозяйство.

Совершенствование территориального разделения труда - правильная специализация и комплексное развитие народного хозяйства районов и городов - одно из главных направлений по эффективному использованию рабочей силы.

2/ С точки зрения передачи практического опыта Советского Союза слаборазвитым странам, весьма полезным может явиться показ путей достижения полной и рациональной занятости людских ресурсов на примере одной из автономных республик. Предметом для такого конкретного анализа может послужить формирование трудовых ресурсов в Коми АССР, являвшейся еще 40 лет назад типичной аграрно-промысловой окраиной России, в укладе хозяйства которой господствовала патриархальщина, характерная при зачатках культуры.

В 20-х годах население этой лесной республики было неграмотным, экономика имела крайне ограниченную отраслевую структуру /основными сферами приложения труда были сельское хозяйство, охота и мелкие промыслы/ и характеризовалась весьма низкой производительностью труда.

Отсутствие развитой крупной промышленности отражалось на занятости наличных трудовых ресурсов. При огромных неосвоенных земельных угодиях в деревнях сохранилось аграрное перенаселение. В зимний же период, когда прекращалось всякая работа в земледелии, безработица достигала значительных размеров. В поисках работы население края целыми селениями /в общей сложности до 15 тыс. человек ежегодно/ уходило на отхожие промыслы в Сибирь и на Урал и возвращалось обратно домой к весенним полевым работам.

Реконструкция народного хозяйства началась с индустриализации края. При освоении разнообразных природных богатств Коми АССР государственные капиталовложения отпускались в первую очередь на разработку тех видов природных ресурсов, производство которых диктовалось как особенностями природных и трудовых ресурсов республики, так и интересами народного хозяйства страны в целом. Правильное сочетание местных и общегосударственных интересов при размещении производительных сил позволило рационально специализировать хозяйство различных районов в системе территориального разделения труда. Особенно большое развитие в Коми АССР получили лесозаготовки. Это обусловливалось наличием сырья, свободной рабочей силы и потребностью страны в древесине для экспорта.

На базе богатейших лесных ресурсов в 30-х годах в Коми АССР были созданы крупные лесозаготовительные хозяйства с применением механизированной рубки леса и тракторов по вывозке древесины к сплавным рекам. В центре республики в г.Сыктывкаре появился лесопильный завод.

Развитие лесной промышленности коренным образом изменило экономическую жизнь населения Коми АССР. Лесозаготовки вовлекли в промышленность имевшиеся избытки сельского населения, создав тем самым благоприятные условия для круглогодового участия в общественном хозяйстве всех трудовых ресурсов, совмещая работу как в земледелии /летом/, так и на лесозаготовках /зимой/. В сезон 1930/31 г.г. бригады лесозаготовителей имели уже 12 тыс. рабочих, а учитывая сплавные работы, общее количество трудящихся в лесной промышленности превышало 20 тысяч.

В последующие годы лесная промышленность прочно завоевала господствующее положение в экономике республики, определив состав и структуру подсобных и обслуживающих производств /строительной, лесообрабатывающей и лесохимической, электроэнергетической и прочих, базирующихся на древесине как источнике сырья, так и топлива. Подготовка квалифицированных кадров стала производиться также в основном по профилю лесной промышленности; был создан Сыктывкарский лесотехнический техникум.

Таким образом специализация Коми АССР на лесной промышленности послужила основой для рационального использования ее природных и трудовых ресурсов, в то же время Коми АССР из аграрной окраины превратилась в важную лесопромышленную базу страны.

С реконструкцией сельского хозяйства на основе создания крупных коллективных хозяйств и ускорения механизации труда быстрыми темпами стала повышаться производительность сельскохозяйственного труда. Это подготовило предпосылки высвобождения людских ресурсов из сельского хозяйства для постоянной работы промышленности и строительства. За 1920-1936 г.г. численность населения республики выросла на 87 тыс.человек. При этом число городских жителей за этот период росло относительно более высокими темпами. Из всей численности трудовых ресурсов, составлявшей в 1936 г. 147 тыс.человек в лесной промышленности работало уже 28,5 тысяч, в сельском хозяйстве 86,3 тыс., на транспорте 5,4 тыс.человек. Остальная часть трудящихся была занята в отраслях непроизводственной сферы. Уже на первом этапе промышленного развития края была полностью ликвидирована безработица, достигнуто более или менее равномерное использование наличной рабочей силы в течение всего года. Это послужило основой для постепенного создания в основных отраслях хозяйства республики постоянных кадров.

С совершенствованием в последующие годы территориальной организации производства и труда было достигнуто планомерное распределение и использование наличных трудовых ресурсов по полу, возрасту и квалификации. В канун второй Мировой войны началось освоение Печорского угольного бассейна и Тимано-Печорской газо-нефтеносной провинции. Развитие топливно-энергетической промышленности в Коми АССР резко повысило энерговооруженность труда, а начавшийся ускоренный технический прогресс в связи с ростом промышленности, дающей топливо и материалы для построек и строительной индустрии облегчил условия труда в этом суровом крае. В 1950 году в структуре занятости промышленно-производственного персонала доля топливной промышленности достигла 35% и лесозаготовительной - 44%.

Чрезмерно высокий удельный вес в структуре хозяйства добывающих отраслей - лесозаготовительной, угольной и нефтегазовой ограничивало однако полное использование женского труда. В связи с этим в послевоенный период в городах и рабочих поселках республики стали развиваться отрасли перерабатывающих производств, в том числе

легкой и пищевой промышленности; одновременно расширяется непроизводственная сфера. Возникают и развиваются производства, использующие в частности возможности загрузки во время обратного рейса железнодорожных вагонов, перевозящих печорский уголь, древесину и нефть. В республике уже создано много перерабатывающих производств /мукомолье, кондитерские и другие фабрики/ на привозном сельскохозяйственном сырье. Они размещаются главным образом в промышленных центрах. Таким образом обеспечивается рост отраслей, обслуживающих нужды населения в товарах широкого потребления и одновременно создаются предпосылки для вовлечения в общественное производство членов семьи, в частности женщин.

Специализация Коми АССР на лесной и топливно-энергетической промышленности в системе районов страны обеспечило комплексное развитие хозяйства и эффективное использование местных природных и людских ресурсов. В республике сформировался рабочий класс, которого раньше не было. Современная структура промышленного производства обеспечивает гармоническое развитие всех отраслей экономики, включая сельское хозяйство и наиболее полно обеспечивает занятость трудящихся. В 1960 году в топливной и лесозаготовительной отраслях промышленности было занято 68% всех рабочих, а в отраслях перерабатывающей промышленности /деревообрабатывающей, электроэнергетике, металлообработке, пищевой, легкой промышленности/ - 32%.

Высокий технический уровень производства и постоянное повышение квалификации кадров ведут к непрерывному повышению производительности труда работающих. В 1959 году по отношению к 1940 году производительность труда в промышленности Коми АССР выросла на 223%.

По переписи населения 1959 года на 1000 человек населения в Коми АССР приходилось с законченным высшим образованием 15 человек, со средним образованием 304 человека. Исчезла разница в уровне образования мужчин и женщин.

Пути обеспечения рационального использования людских ресурсов Коми АССР являются характерными и для других республик и экономических районов Советского Союза.

3/ В интересах достижения более эффективного использования трудовых ресурсов, в практике перспективного планирования в СССР широко применяется балансовый метод. Исходя из плановых наметок роста выпуска продукции и роста производительности труда определяется уровень занятости и перспективная потребность в дополнительных трудовых ресурсах как по каждой отрасли хозяйства и экономическому району, так и в масштабах страны в целом.

Важнейшим разделом балансовой работы по трудовым ресурсам является выявление и мобилизация резервов экономии труда. Если бы в промышленности СССР выработка продукции на одного рабочего оставалась на уровне 1928 года, то для ее производства за 1928-1958г.г. потребовался бы прирост численности рабочих в 85 млн.человек вместо фактического прироста в 13 млн.человек.

При сохранении нынешнего уровня производительности труда 1959 года для выполнения заданий семилетки /1959-1965 г./ по росту производства только для промышленности и сельского хозяйства потребовалось бы довести число занятых до 100 млн. Это на 50% больше, чем вся численность рабочей силы, предусмотренная на 1965 г.

Для обеспечения полной и более эффективной занятости населения в Европейской части страны, где сосредоточено 4/5 всего населения Советского Союза, в перспективе предусматривается значительное расширение промышленного производства и прежде всего развитие трудоёмких отраслей /главным образом в районах высокой концентрации населения/ и более рациональное размещение производительных сил.

В восточных и северных районах страны, где намечается использовать природные ресурсы, доступные для быстрого освоения и дающие наибольший народнохозяйственный эффект, потребность в дополнительной рабочей силе будет сравнительно больше. Она будет обеспечена не только за счет естественного прироста населения, но и за счет перемещения в эти районы рабочей силы из Европейской части СССР.

В связи с ускоренными темпами технического прогресса, изменением структуры хозяйства, совершенствованием организации производства и разделением труда потребуется планомерная подготовка и повышение квалификации работников на всей территории страны для более полного вовлечения их в общественный труд. В результате внедрения новой техники высвободятся миллионы людей, в том числе занятых на вспомогательных, подсобных работах. Много людей высвободится из сельского хозяйства. Резко сократится административно-управленческий и канцелярский аппарат. Миллионы женщин освободятся от труда в домашнем хозяйстве. Они пополнят ряды трудящихся, занятых в народном хозяйстве. В связи с широчайшим развертыванием здравоохранения, просвещения, культуры численность работников, занятых в этих и других непроизводственных сферах, увеличится наиболее сильно - почти в три раза за двадцатилетие. Наряду с этим будет происходить дальнейшее сокращение рабочей недели и рабочего дня.

За предстоящие 20 лет общий объем материального производства в СССР возрастает в 5 раз. Между тем число работников в народном хозяйстве увеличится примерно лишь на 40%. Основным источником роста производства явится гигантский рост производительности труда. Намечается, что в промышленности за двадцатилетие производительность труда возрастет в 4-4,5 раза и в сельском хозяйстве - в 5-6 раз. Высокие темпы роста производительности труда в Советском Союзе обеспечиваются невиданным развитием науки и техники, значительным повышением квалификации кадров и более рациональным использованием трудовых ресурсов.

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